



EETI eGTouch Linux Programming Guide v2.5Q

TABLE OF CONTENTS

TABLE OF CONTENTS.....	0
Sec 1: Introduction	2
1.1 GuideLine	2
1.2 Support From Vendor	2
Sec 2: Before install	3
2.1 Check kernel module.....	3
2.2 Conditions to patch kernel source code	5
2.3 Check device	5
Sec 3: Install Driver Package	7
3-1 Install Process.....	7
3-2 Tools	9
Sec 4: Touch Input Event Sequence	10
4-1 Two different event sequences.....	10
4-2 How to read touch event	11
Sec 5: eGTouchL.ini Parameter Explanations	12
5-1 Parameter Table	12
Sec 6: Annotation.....	17
6-1 DetectRotation Note	17
6-2 Rotation and Beep for Embedded System	17
Sec 7: Multi-Monitor Setting.....	18
7-1 Numerous Devices.....	18
7-2 Monitor Name	18
7-3 Calibration Method.....	19
Sec 8: FAQ.....	20
8-1 Touch not working	20
8-2 Touch position and direction don't match rotated display	22
8-3 OS can not map touch position to screen position	22
8-4 Touch is working, but click some items without reaction.....	23
8-5 eGTouchD can NOT find UART interface device	23
8-6 My UART device receive unexpected data from eGTouchD	23
8-7 GNOME Gesture	24
Sec 9: Support	25



9-1 Need Support From EETI	25
9-2 Driver debug log	26
Sec 10: Appendix	27
10-1 Kernel patch: (for X-window version < 1.8.7 or No X).....	27
10-1.1 kernel 2.6.33 downwards	28
10-1.2 kernel 2.6.34 upwards.....	31
10-2 Kernel patch (kernel 3.8~3.12 with USB resistive).....	33



Sec 1: Introduction

1.1 GuideLine

EETI provides all kinds of touch solution. EETI eGTouch is a touch daemon driver for EETI touch controller. Only is available for kernel **2.6.24** upward.

Support interfaces:

1. USB
2. RS232
3. PS/2

Having below features:

1. Precise points.
2. Great calibration precision for Resistive controller.
3. Capable for 10+ points report.
4. Following Linux Standard Multitouch-protocol point report.
5. Rightclick, beep sound, constant touch filter, etc.
6. Support multi devices.
7. Available for detecting X-window rotation to do rotating coordinate.
8. Provide manually modify driver's behavior.

This document would assist you to install eGTouch.

1.2 Support From Vendor

If you encounter any problem as running eGTouch driver, please refer to the **Sec 8**.

Sec 8 list few common question, it might be useful to you, if your problem still can NOT be solved, please refer to the **Sec 9-1. Need Support From EETI**.

如果你有任何 **driver 使用上的問題**，請參照此文件的第 8 節，該節列出常見的問題，對您可能很有用，如果仍然無法解決您的問題，請參閱第 9-1 節，取得 EETI 的支援。

如果您有任何驱动程序使用上的问题，请参照此文件的第 8 节，该节列出常见的问题，对您可能很有用，如果仍然无法解决您的问题，请参见第 9-1 节，取得 EETI 的支持。

Sec 2: Before install

2.1 Check kernel module

To install driver, please check module configuration as below:

Necessary:

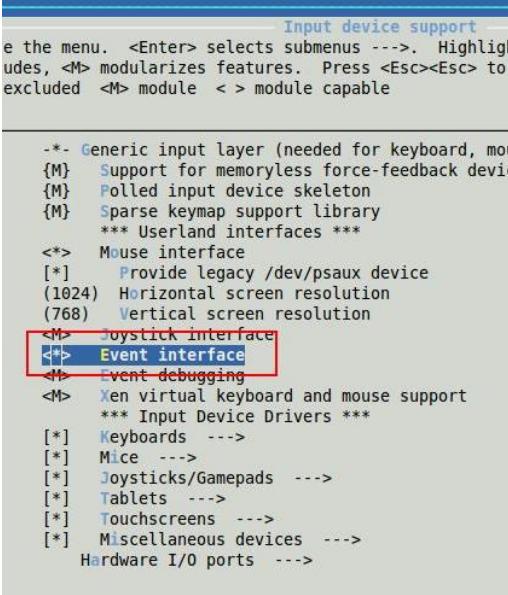
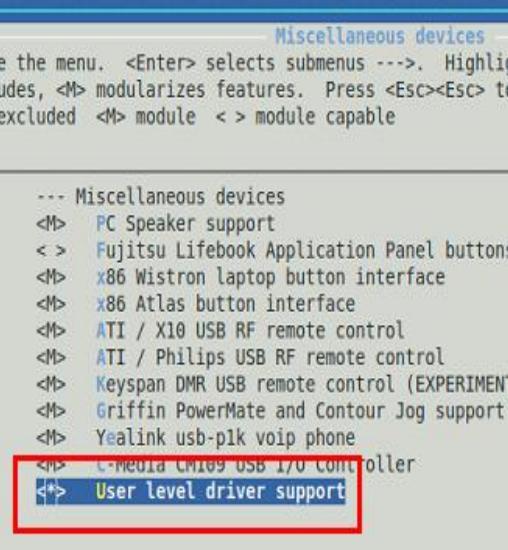
1. EVDEV
2. UINPUT
3. HIDRAW (USB Interface)
4. HID_MULTITOUCHEH (USB Interface & Kernel 3.0 upwards)

Remove:

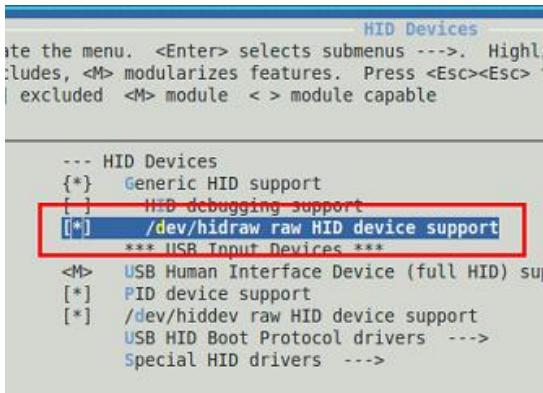
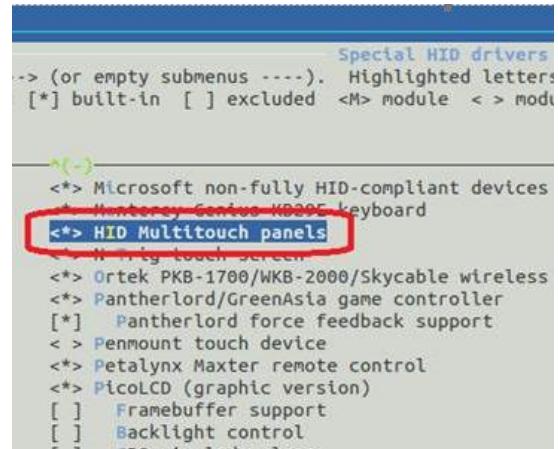
CONFIG_TOUCHSCREEN_USB_COMPOSITE
(For USB Interface & PID 0001 controller)

You could check this by “make menuconfig” command or modify Kconfig file. Below is an example of “make menuconfig”:

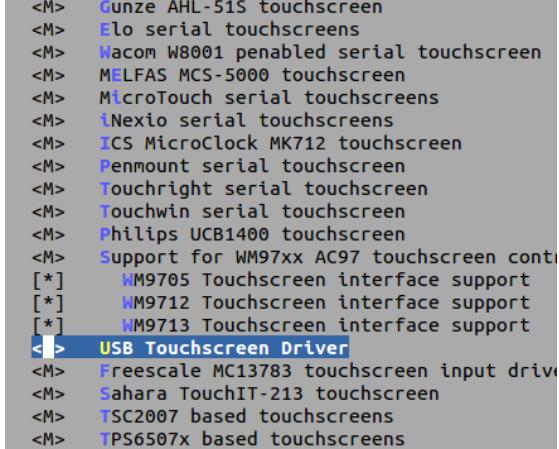
Necessary:

[Device Drivers] / [Input device support] / [Event interface]	[Device Drivers] / [Input device support] / [Miscellaneous devices] / [User level driver support]
	

Necessary:

[Device Drivers] / [HID Devices] / [/dev/hidraw raw HID device support] (for USB Interface)	[Device Drivers] / [HID Devices] / Special HID drivers / HID Multitouch panels (If Kernel Version 3.0 upwards & for USB Interface)
	

Remove:

[Device Drivers] / [Input device support] / [Touchscreens] / [USB Touchscreen Driver] (PID 0001 USB controller)


2.2 Conditions to patch kernel source code

If your system does not fulfill the conditions described below, please ignore this section.

If your system **meets all** below two conditions, please refer to **Appendix 10-1** to do kernel blacklist patch first, or driver would **NOT** be functional.

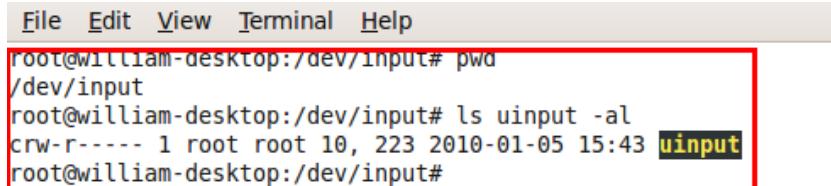
1.	Interface	USB
2.	X.org version	< 1.8.7 or no X-window

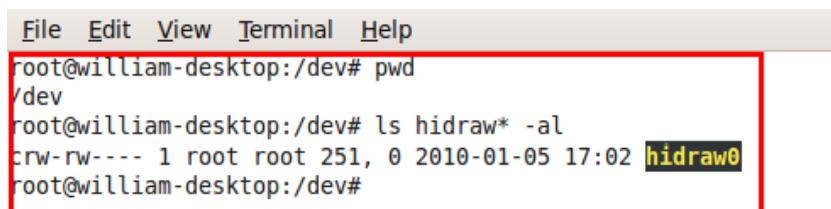
If your system **meets all** below three conditions, please refer to **Appendix 10-2** to do kernel HIDCORE patch first, or driver would **NOT** be functional.

1.	Interface	USB
2.	Kernel version	3.8.x to 3.12.x
3.	ControllerType	Resistive or SCAP

2.3 Check device

- 1.) If you did above modification, please rebuild your kernel to make it effect.
- 2.) After that, you could check those kernel functions enable or not through below steps.

All interface.
a. UINPUT device node
You should see uinput under /dev/input/uinput or /dev/uinput. For example:  File Edit View Terminal Help root@william-desktop:/dev/input# pwd /dev/input root@william-desktop:/dev/input# ls uinput -al crw-r----- 1 root root 10, 223 2010-01-05 15:43 uinput root@william-desktop:/dev/input#

USB interface only.
b. hidraw device node
As the usb device is plug-in, there would be a hidraw node generated under /dev  File Edit View Terminal Help root@william-desktop:/dev# pwd /dev root@william-desktop:/dev# ls hidraw* -al crw-rw---- 1 root root 251, 0 2010-01-05 17:02 hidraw0 root@william-desktop:/dev#



Type command “**cat /proc/bus/input/devices**” and see the result.

If you need and have done the source code patch, you would see a **blank content** behind the **Handlers** item.

```
I: Bus=0003 Vendor=0eeef Product=720c Version=0100
N: Name="eGalax Inc. USB TouchController"
P: Phys=usb-0000:00:1d.0-2/input0
S: Sysfs=/devices/pci0000:00/0000:00:1d.0/usb2/2-2/2-2:1.0/input/input7
U: Uniq=
H: Handlers=                  
B: EV=1b
B: KEY=421 0 30001 0 0 0 0 0 0 0 0 0
B: ABS=100 3f
B: MSC=10
```



Sec 3: Install Driver Package

3-1 Install Process

Before running install setup script, please plug-in the controller first. Then you could execute script file **setup.sh** to automatically install driver.

Syntex:

```
sh setup.sh           # To install the eGTouch driver.  
sh setup.sh uninstall # To remove the eGTouch driver.
```

You could also complete these steps manually.

1. Decompress eGTouch package which contains:
 - a) eGTouchD: a daemon service driver for EETI touch controller.
 - b) eGTouchL.ini: a parameter list loaded by driver
 - c) GetEvent.c: a sample code describes how to read EETI input event.

If you have X-window, you may also be available for these:

 - d) eGTouchU: a X-window utility tool for eGTouchD (x86 only)
 - e) eCalib: a command line X-window calibration tool.
 - f) 52-egalax-virtual.conf X-window configure file for recognizing EETI touch
2. Place “eGTouchL.ini” into Linux system directory “/etc/eGTouchL.ini” where driver would load it. We can change driver behavior by modifying this file. **The detail descriptions of parameters are described in Section 5.** (You can see brief definitions in eGTouchL.ini)
3. Place **eGTouchD** , **eGTouchU** (x86 only) and **eCalib** (need X-window) under **/usr/bin**.
4. In general Linux distribution, please edit /etc/rc.local (/etc/rc.d/rc.local in RedHat or /etc/init.d/boot.local in Suse), to place /usr/bin/eGTouchD execution in /etc/rc.local to make eGTouchD execute at system boot.

```
#!/bin/sh  
#  
# rc.local  
#  
# This script is executed at the end of each multiuser runlevel.  
# Make sure that the script will "exit 0" on success or any other  
# value on error.  
#  
# In order to enable or disable this script just change the execution  
# bits.  
#  
# By default this script does nothing.  
  
### Beginning: Launch eGTouchD daemon while setup boot-up ###  
/usr/bin/eGTouchD  
### End: Launch eGTouchD daemon while setup boot-up ###  
exit 0
```

5. To blacklist usbtouchscreen module run from the beginning of system operation. You could also manually modify **/etc/modprobe.d/blacklist.conf** to add usbtouchscreen into blacklist.

```
### Beginning: blacklist usbtouchscreen ###
blacklist usbtouchscreen
### End: blacklist usbtouchscreen ###
```

6. If Xorg Version is 1.8.7 upwards, put **52-egalax-virtual.conf** xorg rule file into **/usr/share/X11/xorg.conf.d** folder

7. After launching eGTouchD with device plugged, check **/proc/bus/input/devices** file and you will find two virtual devices. Like below figures:

```
I: Bus=0006 Vendor=0eef Product=0020 Version=0001
N: Name="eGalaxTouch Virtual Device for Multi"
P: Phys=
S: Sysfs=/devices/virtual/input/input13
U: Uniq=
H: Handlers=event10
D: input
```

```
I: Bus=0006 Vendor=0eef Product=0010 Version=0001
N: Name="eGalaxTouch Virtual Device for Single"
P: Phys=
S: Sysfs=/devices/virtual/input/input14
U: Uniq=
H: Handlers=event11
```

We could check event node which was assigned to the virtual device and read/get input event through this device node, e.g. /dev/input/eventX.



3-2 Tools

As you have **X-window**, these tools are available for use.

Please execute these tools under “root” permission!

eGTouchU x86 system only	The tool eGTouchU is a utility tool which could help you modify driver's parameter through UI. The detail descriptions please refer to the document "EETI eGTouch Utility Guide" in driver package.
eCalib	The tool eCalib is a calibration tool with command line. Please type "eCalib -h" to see the usage content.



Sec 4: Touch Input Event Sequence

The eGTouchD daemon sends input event through kernel feature UINPUT so that the client program can get these events from /dev/input/eventX.

4-1 Two different event sequences

The eGTouchD daemon would report event based on different kernel version.

1. kernel version is 2.6.36 upwards:

Multi-touch Protocol Type B

```
ABS_MT_SLOT 0
ABS_MT_TRACKING_ID 0
ABS_MT_POSITION_X x[0]
ABS_MT_POSITION_Y y[0]
ABS_MT_SLOT 1
ABS_MT_TRACKING_ID 1
ABS_MT_POSITION_X x[1]
ABS_MT_POSITION_Y y[1]
```

you can see the detailed rule described in [/Documentation/input/multi-touch-protocol.txt](#) under Linux kernel source code.

2. kernel version is 2.6.35 downwards:

EETI protocol: Standard mouse event and custom extra event

Type = EV_KEY Code = BTN_LEFT Value = left mouse button state of first point , 1: pen down / 0: life off.	Type = EV_KEY Code = BTN_EXTRA Value = the touch state of second point , 1: pen down / 0: lift off.
Type = EV_ABS Code = ABS_X Value = the X axis position of first point . The range is from 0 to 4095.	Type = EV_ABS Code = ABS_RX Value = the X axis position of second point . The range is from 0 to 4095
Type = EV_ABS Code = ABS_Y Value = the Y axis position of first point . The range is from 0 to 4095.	Type = EV_ABS Code = ABS_RY Value = the Y axis position of second point . The range is from 0 to 4095.



Type = EV_SYNC
Code = SYN_REPORT
Value = 0

A Sync report event, all data will be valid after this event is received.

4-2 How to read touch event

EETI provide a sample code **GetEvent.c** to show how the event sequence behaves. Please compile the sample code and execute it corresponding to the event node (/dev/input/eventX). You would see the event sequence as panel is touched and design your own application based on this input sequence as well



Sec 5: eGTouchL.ini Parameter Explanations

The file **eGTouchL.ini** has a parameter list which would be loaded by driver. Driver's behavior could be changed by these parameters. Please **DON'T** modify the front title as setting up eGTouchL.ini.

5-1 Parameter Table

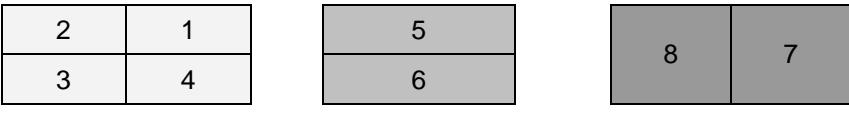
This table describe the detailed usage of all parameters. There is also a simple description in eGTouchL.ini.

◆ DebugEnableBits	Debug message you want to show.
0	Close all Debug
1	Print initialization debug message [Default]
FFFFF	Open all Debug
◆ ShowDebugPosition	Position you want to show/store Debug message
0	Print in file located at /tmp [Default]
1	Print in terminal
2	Print in above both
◆ RemoveDriverLog	Remove old Driver Log.
0	Keep all old log.
1	Remove all old log. [Default]
2	Keep last 4 old log + new log.
◆ DeviceNums	How many devices you want to plug-in to the system. If you want more than one device, please modify this value.
1	Only one device [Default]
2-10	More than one device. [Max = 10]
◆ Baudrate	Choose the Baud Rate
0	Auto detect Baud rate [Default]
X	Set Baudrate to X bps. (PCAP: 115200 , Resis: 9600, please check with datasheet)
◆ ScanInterface	Choose scan interface
0	Scan all interface [Default] (USB / RS232 / PS/2)
1	Scan USB interface only.
2	Scan UART interface only.
3	Scan PS/2 interface only.
◆ UseDriverCalib	Use Driver Calibration



0	No Driver Calibration. [Default]
1	Use Driver Calibration.
◆ SkipFirstByte	Skip First Byte with some old Linux system.
0	No Skip. [Default]
1	Skip First Byte.
◆ ScanDevStartDelayTime	Driver booting delay time
0	No delay [Default]
X	Delay X millisecond to start driver.
◆ ScanDevInterval	Scan Device Interval
50	50ms [Default]
X	Delay X millisecond of Scan Device Interval.
◆ RS232HWFlowCtl	RS232 HW Flow Ctrl
1	HW Flow Ctrl.[Default]
0	No HW Flow Ctrl.
◆ MouseDevDisable	Disable "eGalaxTouch Virtual Device for Single" (Mouse Dev)
0	Not Disable. [Default]
1	Disable Mouse Dev.
◆ SerialPath	RS232 Serial Path
default	Default path /dev/ttySX (X could be equals to 0-10) [Default]
/dev/serial/t	Customized path. Please type in your specific serial path accordinating to the form.
◆ DevPID	Device PID
null	Null [Default]
X	Only Scan USB PID=X.
◆ eGalaxTool	Set eGalax Tool & Driver log Path
/tmp	Default Pipe & log Path. [Default]
X	Set Pipe & log Path to X.
◆ SupportPoints	The amount of points you want to report (This is also confined by Controller)
0	No point
1	Single-touch
>=2	Multi-touch [Default = 10]
◆ VirtualDevName	To Input Virtual Device Name
null	null [Default]
X	X
◆ Direction	Change the X and Y direction



0	Don't make any invert [Default]	
1	Invert X	
2	Invert Y	
3	Invert both X and Y	
4	Swap X and Y	
◆ Orientation		Change the orientation
0	0 degree [Default]	
1	90 degree	
2	180 degree	
3	270 degree	
◆ EdgeCompensate		Do edge compensate
0	Disable [Default]	
1	Enable	
EdgeLeft, EdgeRight		Edge compensate value
EdgeTop, EdgeBottom		
X	<p>If equals to 100, it means no change. If you set Left=50, you'll see the left-edge points are shrinks inward. And vice versa. [Min 50 - 150 Max] [Default = 100]</p>	
◆ HoldFilterEnable		Filter out constant touch or not
0	Disable [Default]	
1	Enable	
HoldRange		Constant touch valid area
X	<p>$\pm X$ range of the point which would lead to constant touch [Min 0 - 50 Max] [Default = 10]</p>	
◆ SplitRectMode		Split the display into Specific Rect. Touch would just show on the specific Rect.
0	No change (Full Display) [Default]	
1-8	Driver in-built split Rect 	
9	Customized Rect.	
CustomRectLeft		These parameters are valid as SplitRectMode=9. You can customize the Rect by these parameters.
CustomRectRight		
CustomRectTop		
CustomRectBottom		
0-4095	Four sides of the customized Rect	



◆ MonitorName		Monitor Name
default		Use for mapping touch data output to specific monitor.
null		Check monitor name by command "xrandr", example: "eDP1". If there's no rotation and multi monitor requirement, just ignore it. Note: if you find your monitor name will change after suspend resume. You can set "eDP*", and then driver will search correct monitor number.
◆ DetectRotation (Only for x86 system)		Enable: Driver would map its coordinate corresponding to X window rotation or monitor status change. *Please see Sec 6. Disable: If there's no rotation and multi monitor requirement, just disable it.
0	Disable [Default]	
1	Enable	
◆ ReportMode		Set different report type
1	Normal Mode. Report point normally. [Default]	
2	Click on Touch. Only report point as touch down.	
3	Click on Release. Only report point as touch up.	
◆ EventType		Set events report type
0	Auto detect mode	
1	Single touch mode (if mouse cursor is disappeared, please try set EventType to 1)	
2	Multi touch even type mode	
◆ BtnType		Set EETI protocol BtnType
0	Report single event as BTN_LEFT. [Default]	
1	Report single event as ABS_PRESSURE. (Generally for Tslib)	
2	Report single event as BTN_TOUCH.	
◆ RightClickEnable		Report mouse Right Click after constant touch for a while
0	Disable Right Click	
1	Enable Right Click [Default]	
RightClickDuration		Constant touch duration to trigger Right Click
X	X milliseconds [Default = 1500]	
RightClickRange		Valid area of trigger-RightClick constant touch
X	$\pm X$ range of the point would lead to constant touch for RightClick [Min 0 - 50 Max] [Default = 10]	
◆ BeepState		Make a beep sound as touch *Please see Sec 6-3.
0	Disable Beep	
1	Make a beep sound as "Touch Down"	
2	Make a beep sound as "Touch Up"	
3	Make a beep sound as both two above conditions.	



BeepDevice		Choose the beep sound device
0	No device	
1	Send beep sound by from system buzzer	
2	Send beep sound by from sound card (Only for x86 system)	
3	Send beep sound from both devices.	
BeepFreq		You can modify buzzer beep frequency here.
X	(Only for buzzer) The buzzer beep frequency. [Default = 1000]	
BeepLen		You can modify buzzer beep time length here.
X	(Only for buzzer) The buzzer beep time length (ms). [Default = 200]	
◆ VKEYEnable		Enable this option if there's virtual key on your touch sensor.
0	Disable [Default]	
1	Enable	
VKEYReportMod		Virtual Key Sensitivity.
X	Smaller value means more sensitive. On the other hand, larger is less sensitive	
VKEY_X		Y
		1. The value of X refer to the vkey package reported by controller as touching the specified virtual key on your sensor. 2. The value of Y refer to the keyevent code in input.h which you want to report to system. You can choose the keyevent you want and fill in the code.
Example A: VKEY_0		139
		1. As controller report vkey package [0], we'll send keyevent code [139] to system. 2. The event code [139] in input.h refers to MENU_KEY. Note: 139 is a decimal number.
Example B(Combo Key): VKEY_1 29+56+111		1. You can fill in Combo Key number in Y, separated by symble "+". 2. As controller report vkey package [1], eGTouchD will send keyevent code 29+56+111 to system(CTRL+ALT+Del). 3. Maximum support 5 Keys Combo. The event code 29 in input.h refer to KEY_LEFTCTRL. The event code 56 in input.h refer to KEY_LEFTALT. The event code 111 in input.h refer to KEY_DELETE.
Note: If you're not sure controller's vkey package value, please contact EETI vendor.		



Sec 6: Annotation

6-1 DetectRotation Note

eGTouch driver support detect monitor rotation and multi monitor mapping. For enable these features, eGTouch driver have to be executed after X-server is ready(We use Xlib to do detection), and system need support these commands: "xrandr" and "xinput".

We recommand use **lightdm** to startup eGTouch driver until now, if your system not using lightdm, please install lightdm first. You can install by this command: "apt-get install lightdm". Since the ready time sequence of Xlib is different among diverse startup. We're sorry that we couldn't provide solution correspond to all startup. If there's any further problem as setting up please contact us for technical support.

Notice:

When you execute "setup.sh "to install eGTouch driver, please set "y" to enable functions.

```
(Q) Do you have requirement of monitor rotation or multi monitor?  
(I) [y/N] :y
```

And remember set "MonitorName" in /etc/eGTouchL.ini

MonitorName	Virtual1
DetectRotation	1

You can check monitor name by command "xrandr".

```
root@ubuntu:/eGTouch_v2.5.8630.L-x# xrandr  
Screen 0: minimum 1 x 1, current 1920 x 984, maximum 8192 x 8192  
Virtual1 connected primary 1920x984+0+0 (normal left inverted right x axis y axis) 0mm x 0mm
```

6-2 Rotation and Beep for Embedded System

If you are using an embedded system (ex: ARM CPU), and you need support for rotation detection. There's a necessary condition: **Xrandr** lib support since eGTouch detect rotation event by Xrandr lib.

And so on. If you are using an embedded system (ex: ARM CPU), you need support for sound card beep. There's a necessary condition: **ALSA** lib support since eGTouch send beep sound by ALSA lib.

If you need this support and your system got target library, please contact us for a customized driver. Thanks.

Sec 7: Multi-Monitor Setting

7-1 Numerous Devices

If you're going to use numerous devices, please do remember to modify the parameter "DeviceNums" in the ini file.

For example: If you've plug **two** EETI devices on your system, please modify the parameter as below:

DeviceNums	2
[eGTouchL.ini]	
DebugEnableBits	1
ShowDebugPosition	0
DeviceNums	2
BaudRate	0
ScanInterface	1
UseDriverCalib	0
SkipFirstByte	0
ShiftByteBothEnd	1
ScanDevStartDelayTime	0

After modifying the parameter, please reboot your system or restart driver to make it valid.

7-2 Monitor Name

After setting 7-1 Numerous Devices and reboot system or restart driver, /etc/eGTouchL.ini will have two devices configuration, please make sure MonitorName and DetectRotation are setting correctly by each device.

For example, you can get monitor name via **\$ xrandr** and set it to the corresponding device, and check DetectRotation is set to 1, and set the second device as the same way.

[Device_No.0]	
Physical_Address	
SupportPoints	10
SendRawPoints	0
Direction	0
Orientation	0
EdgeCompensate	0
EdgeLeft	100
EdgeRight	100
EdgeTop	100
EdgeBottom	100
HoldFilterEnable	1
HoldRange	20
SplitRectMode	0
CustomRectLeft	0
CustomRectRight	2047
CustomRectTop	0
CustomRectBottom	2047
MonitorName	Virtual1
DetectRotation	1
ReportMode	1

william@ubuntu:~\$ xrandr	
Screen 0: minimum 1 x 1, current 1920 x 984	
Virtual1 connected primary 1920x984+0+0 (normal)	
1920x984 60.00*+	
2560x1600 59.99	
1920x1440 60.00	
1856x1392 60.00	
1792x1344 60.00	
1920x1200 59.88	
1600x1200 60.00	
1680x1050 59.95	
1400x1050 59.98	
1280x1024 60.02	
1440x900 59.89	
1280x960 60.00	
1360x768 60.02	
1280x800 59.81	
1152x864 75.00	
1280x768 59.87	
1024x768 60.00	
800x600 60.32	
640x480 59.94	

After modifying the parameter, please reboot your system or restart driver to make it valid.



7-3 Calibration Method.

If you are using PCAP devices, it is no need to do calibration, if not, please refer to the below statement.

The calibration tool eCalib currently does not support multi-monitor, you may have to calibrate your touch controller one by one.

For example, if you are using two touch controller and monitor, please disconnect your second monitor and touch controller, than do calibration and disconnect first monitor and controller after calibrating done, than reconnect second monitor and touch controller to your system, do calibration again, reconnect all of your monitors and controllers after calibrating done.



Sec 8: FAQ

8-1 Touch not working

1. Check connection of controller.

For USB interface: **\$ dmesg | grep eGalax**

[PCAP example]

```
william@ubuntu:~$ dmesg | grep eGalax
[ 2.535665] usb 3-2: Product: eGalaxTouch P80H60 -0738-01.00.00.00
[ 2.535666] usb 3-2: Manufacturer: eGalax Inc.
[ 3.135173] input: eGalax Inc. eGalaxTouch P80H60 -0738-01.00.00.00 Touchscreen as /devices/pci0000:00/
[ 3.135240] input: eGalax Inc. eGalaxTouch P80H60 -0738-01.00.00.00 Mouse as /devices/pci0000:00/0000:0
[ 3.135301] hid-generic 0003:0EEF:C002.0002: input,hiddev0,hidraw1: USB HID v1.11 Mouse [eGalax Inc. eG
[ 5.793160] input: eGalax Inc. eGalaxTouch P80H60 -0738-01.00.00.00 as /devices/pci0000:00/0000:00:15.0
[ 5.793233] input: eGalax Inc. eGalaxTouch P80H60 -0738-01.00.00.00 Mouse as /devices/pci0000:00/0000:0
[ 5.793334] hid-multitouch 0003:0EEF:C002.0002: input,hiddev0,hidraw1: USB HID v1.11 Mouse [eGalax Inc.
```

[Resistant touch example]

```
william@ubuntu:~$ dmesg | grep eGalax
[ 271.583758] usb 3-2: Manufacturer: eGalax Inc.
[ 271.598261] input: eGalax Inc. USB TouchController Mouse as /devices/pci0000:00/0000:00:15.0/0
[ 271.659540] input: eGalax Inc. USB TouchController as /devices/pci0000:00/0000:00:15.0/0000:03
[ 271.659597] input: eGalax Inc. USB TouchController as /devices/pci0000:00/0000:00:15.0/0000:03
[ 271.659673] hid-multitouch 0003:0EEF:0001.0003: input,hiddev0,hidraw1: USB HID v1.00 Mouse [eG
```

For UART interface: **\$ dmesg | grep tty**

Find system current ttys inputs.

```
william@ubuntu:~$ dmesg | grep tty
[ 0.097465] printk: console [tty0] enabled
[ 0.810898] 00:05: ttyS0 at I/O 0x3f8 (irq = 4, base_baud = 115200) is a 16550A
[ 0.835707] 00:06: ttyS1 at I/O 0x2f8 (irq = 3, base_baud = 115200) is a 16550A
```

Use hexdump and touch screen, if connection is OK, it will print some information.

\$ sudo hexdump /dev/ttysX, in this example, X should be 0 or 1.

```
william@ubuntu:~$ sudo hexdump /dev/ttys1
00000000 0781 4742 0781 4741 0781 4741 0781 4840
```

If you have trouble in this step, please check the hardware connection of your device and controller.

2. Check eGTouch driver status.

\$ ps -ef | grep eGTouchD

```
william@ubuntu:~$ ps -ef | grep eGTouchD
root      197212  79390  1 16:06 ttys1    00:00:41 eGTouchD -f
william   197603 197331  0 17:04 pts/4    00:00:00 grep --color=auto e
```

If eGTouchD is not running, please running eGTouchD manually. **\$ sudo eGTouchD**

3. Check input device has been created.

\$ cat /proc/bus/input/devices | grep eGalax To see is there any eGalaxTouch Virtual Device in list.

[PCAP example]

```
william@ubuntu:~$ cat /proc/bus/input/devices | grep eGalax
N: Name="eGalax Inc. eGalaxTouch P80H60 -0738-01.00.00.00"
N: Name="eGalax Inc. eGalaxTouch P80H60 -0738-01.00.00.00 Mouse"
N: Name="eGalaxTouch Virtual Device for Single"
N: Name="eGalaxTouch Virtual Device for Eraser"
N: Name="eGalaxTouch Virtual Device for Touch"
N: Name="eGalaxTouch Virtual Device for Pen"
```

[Resistant touch example]

```
william@ubuntu:~$ cat /proc/bus/input/devices | grep eGalax
N: Name="eGalax Inc. USB TouchController Mouse"
N: Name="eGalax Inc. USB TouchController"
N: Name="eGalax Inc. USB TouchController"
N: Name="eGalaxTouch Virtual Device for Single"
```

If you have trouble in this step, please check the required modules have been installed correctly. (Refer to [2.1 Check kernel module](#))

If you are using UART interface, please also have a check to [8.5](#) section.

4. Check input data flow.

Use evtest to get the data from input device, (Installation: **\$ sudo apt-get install evtest**)

Select the respond device as below example. **\$ sudo evtest**

[PCAP example] Select eGalax Virtual Device for Touch and touch screen.

```
william@ubuntu:~$ sudo evtest
No device specified, trying to scan all of /dev/input/event*
Available devices:
/dev/input/event0:    Power Button
/dev/input/event1:    AT Translated Set 2 keyboard
/dev/input/event2:    VirtualPS/2 VMware VMMouse
/dev/input/event3:    VirtualPS/2 VMware VMMouse
/dev/input/event4:    VMware VMware Virtual USB Mouse
/dev/input/event5:    eGalax Inc. eGalaxTouch P80H60 -0738-01.00.00.00
/dev/input/event6:    eGalax Inc. eGalaxTouch P80H60 -0738-01.00.00.00 Mouse
/dev/input/event7:    eGalaxTouch Virtual Device for Single
/dev/input/event8:    eGalaxTouch Virtual Device for Eraser
/dev/input/event9:    eGalaxTouch Virtual Device for Touch
/dev/input/event10:   eGalaxTouch Virtual Device for Pen
Select the device event number [0-10]: 9
```

[Resistant touch example] Select eGalax Virtual Device for Single and touch screen.

```
william@ubuntu:~$ sudo evtest
No device specified, trying to scan all of /dev/input/event*
Available devices:
/dev/input/event0:    Power Button
/dev/input/event1:    AT Translated Set 2 keyboard
/dev/input/event2:    VirtualPS/2 VMware VMMouse
/dev/input/event3:    VirtualPS/2 VMware VMMouse
/dev/input/event4:    VMware VMware Virtual USB Mouse
/dev/input/event5:    eGalax Inc. USB TouchController Mouse
/dev/input/event6:    eGalax Inc. USB TouchController
/dev/input/event7:    eGalax Inc. USB TouchController
/dev/input/event8:    eGalaxTouch Virtual Device for Single
Select the device event number [0-8]: 8
```

If you see data printing from screen, you may check has inbox touch driver has been blocked correctly. (Refer to [2.2](#) section)

If you do not see data printing from screen, please refer to [9.1](#) section, describe your issue and contact us.

8-2 Touch position and direction don't match rotated display

- Set Orientation value in **eGTouchL.ini** to match your using scenario.

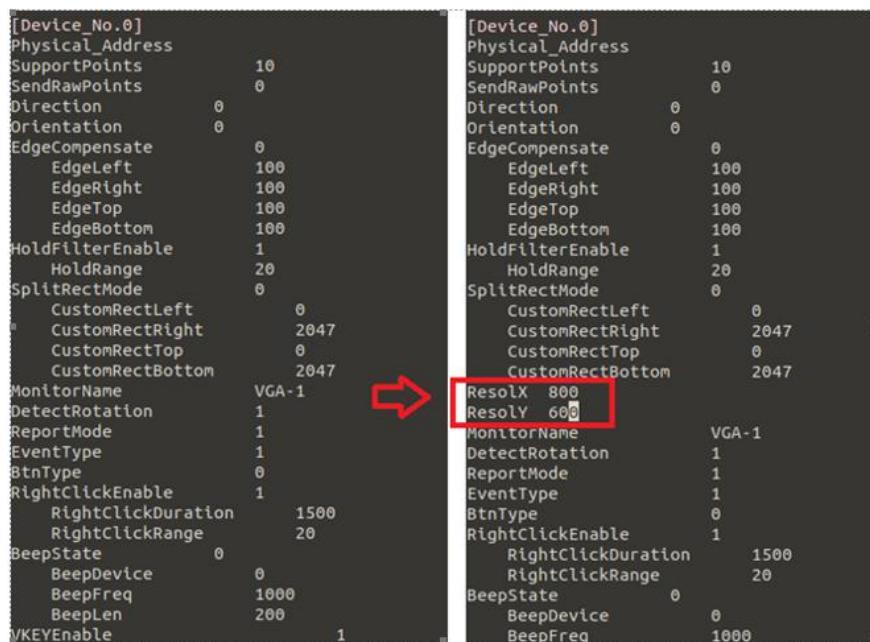
Screen Rotation	Setting Orientation
	Orientation = 0
	Orientation = 1
	Orientation = 2
	Orientation = 3

- Reboot device.

8-3 OS can not map touch position to screen position

Some Linux embedded system do not have display server (X, Wayland..), so the resolution of touch input cannot be mapped to screen, in this case, you may need to specific your screen resolution manually, please follow the below steps.

- Get screen resolution, and set resolution manually.
(You can get screen resolution via **\$ xrandr**)
- For example, if your resolution is 800x600, add **ResolX** and **ResolY** to **eGTouchL.ini**



```
[Device_No.0]
Physical_Address
SupportPoints      10
SendRawPoints      0
Direction          0
Orientation         0
EdgeCompensate     0
    EdgeLeft        100
    EdgeRight       100
    EdgeTop         100
    EdgeBottom      100
HoldFilterEnable   1
HoldRange          20
SplitRectMode      0
    CustomRectLeft  0
    CustomRectRight 2047
    CustomRectTop   0
    CustomRectBottom 2047
MonitorName        VGA-1
DetectRotation     1
ReportMode         1
EventType          1
BtnType            0
RightClickEnable   1
    RightClickDuration 1500
    RightClickRange   20
BeepState          0
    BeepDevice       0
    BeepFreq         1000
    BeepLen          200
VKEYEnable         1
```



```
[Device_No.0]
Physical_Address
SupportPoints      10
SendRawPoints      0
Direction          0
Orientation         0
EdgeCompensate     0
    EdgeLeft        100
    EdgeRight       100
    EdgeTop         100
    EdgeBottom      100
HoldFilterEnable   1
HoldRange          20
SplitRectMode      0
    CustomRectLeft  0
    CustomRectRight 2047
    CustomRectTop   0
    CustomRectBottom 2047
ResolX  800
ResolY  600
MonitorName        VGA-1
DetectRotation     1
ReportMode         1
EventType          1
BtnType            0
RightClickEnable   1
    RightClickDuration 1500
    RightClickRange   20
BeepState          0
    BeepDevice       0
    BeepFreq         1000
```

- Reboot device.



8-4 Touch is working, but click some items without reaction

Some desktops of Linux distribution have compatible issue to multi-touch event. In this case, connect touch device to other system, and observe is it can reproduce at the different system. If so, please upgrade your system or change to other system.

If you are using **PCAP** and you do not have multi-touch requirement, you also can change event type to single event, for details, please refer to [5.1](#) section.

8-5 eGTouchD can NOT find UART interface device

Check the setting of ScanInterface and SerialPath in **eGTouchL.ini**, please try to change ScanInterface setting to **2** and assign serial path with your input path, the definition of ScanInterface refer to [5.1](#) section, to figure out serial path can refer to [8.1](#) section.

```
[eGTouchL.ini]
DebugEnableBits          1
ShowDebugPosition         0
DeviceNums                1
BaudRate                  0
ScanInterface              2
UseDriverCalib             0
SkipFirstByte              0
ShiftByteBothEnd           1
ScanDevStartDelayTime      0

[String]
SerialPath0                /dev/ttyS1
SerialPath1                default
DevPID0                     null
DevPID1                     null
```

After modifying the parameter, please reboot your system or restart driver to make it valid.

8-6 My UART device receive unexpected data from eGTouchD

As default, eGTouchD will scan USB and UART interface to find touch controller, eGTouchD use Vendor ID (VID) and Product ID (PID) to interpret USB interface touch device and send some data to UART to interpret UART interface touch device, this issue can be avoided by the below setting.

If you are using USB interface touch controller, please modify the ScanInterface to **1** in **eGTouchL.ini**, than eGTouchD will skip to scan UART interface.

If you are using UART interface touch controller, please refer to [8.5](#) section to specify ScanInterface and SerialPath in **eGTouchL.ini**, eGTouchD will only scan specified serial path. After modifying the parameter, please reboot your system or restart driver to make it valid.

8-7 GNOME Gesture

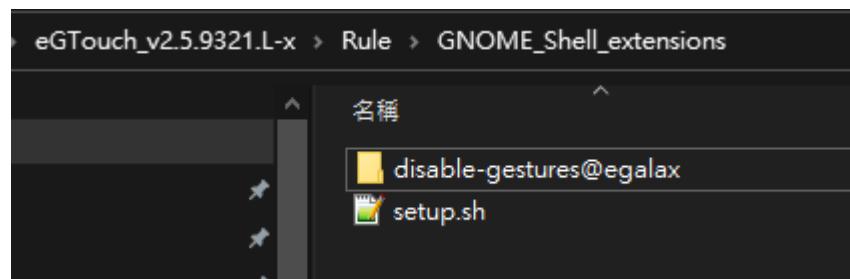
GNOME 3.14 Support Touchscreen gestures for application and for system-wide actions.

If you'd like to disable GNOME Gesture for your KIOSK system.

You can install gnome-shell-extensions-tool, and use EETI disable-gestures **setup.sh** script to install “disable-gestures” extensions.

```
./setup.sh: #Install Gnome Extension: Disable-Gnome-Gesuture.
```

```
./setup.sh uninstall: #Uninstall Gnome Extension: Disable-Gnome-Gesuture
```



After install “disable-gestures” extensions, you can use command “gnome-shell-extension-tool” to enable & disable this extensions.

```
root@ubuntu:/# gnome-shell-extension-tool -e disable-gestures@egalax
'disable-gestures@egalax' is now enabled.
root@ubuntu:/# gnome-shell-extension-tool -d disable-gestures@egalax
'disable-gestures@egalax' is now disabled.
root@ubuntu:/#
```

Sec 9: Support

9-1 Need Support From EETI

If you have any problems when running the eGTouchD driver and the above FAQs still cannot solve your problem, please help to collect debugging information and provide a description of your issue. Collecting required information according to the following steps can help us understand your problem and provide assistance as soon as possible.

Please run **eetiGetInfo.sh** script as root to collect debugging information, the information may include your system information, kernel log, driver setting and driver information, we only use these information to assist your question.

```
root@ubuntu:/home/william/v2.5.9321/eGTouch_v2.5.9321.L-x# 
.
├── ChangeLog_Release.txt
├── EETI_License.pdf
└── eGTouch32
    ├── eGTouch32nonX
    │   ├── eGTouchD
    │   └── eGTouchL.ini
    ├── eGTouch32withX
    │   ├── eCalib
    │   ├── eGTouchD
    │   ├── eGTouchL.ini
    │   └── eGTouchU
    └── eGTouch64
        ├── eGTouch64nonX
        │   ├── eGTouchD
        │   └── eGTouchL.ini
        ├── eGTouch64withX
        │   ├── eCalib
        │   ├── eGTouchD
        │   └── eGTouchL.ini
        └── eGTouchU
    └── Guide
        ├── EETI_eGTouch_Linux_Programming_Guide_v2.5l.pdf
        ├── eetiGetInfo.sh
        ├── eGTouch_Utility_Guide_for_Linux_v1.03.pdf
        └── GetEvent.c
    └── readme.txt
    └── Rule
        ├── 52-eGalax-lightdm.conf
        ├── 52-eGalax-udev.rules
        ├── 52-eGalax-virtual.conf
        ├── 52-eGalax-virtual-libinput.conf
        ├── egalaxsudoer
        ├── eGTouchD.desktop
        ├── eGTouchD.service
        ├── eGTouchResume.service
        ├── eGTouch.sh
        ├── eGTouchU.desktop
        ├── eGTouchU.png
        ├── rc.local
        └── serio_raw.sh
    └── setup.sh
8 directories, 33 files
```

This may takes few seconds, and you will find an **eeti.tar.gz** file in your current path.

Please attach **eeti.tar.gz**, describe your issue and contact us by mail: touch_fae@eeti.com



9-2 Driver debug log

1. Modify file eGTouchL.ini. Change the value of the parameter DebugEnableBits from 1 to FFFF. Change the value of ShowDebugPosition from 1 to 0.

As below

```
[eGTouchL.ini]
DebugEnableBits      FFFF
ShowDebugPosition    0
```

2. Reboot your system. After rebooting, please touch four corner of the touch panel.
3. The log file would be printed in /tmp/eGTouch_[year]_[date]_[time]
4. You may see numerous logs named eGTouch_[year]_[date]_[time]. Please send us the Newest one for analyzing. Thanks.



Sec 10: Appendix

If your system's X-window version is 1.8.7 upwards, kernel version is not 3.8 to 3.12, and EETI touch controller type is not USB Resistive/SCAP touch, please **IGNORE** this section.

10-1 Kernel patch: (for X-window version < 1.8.7 or No X)

If your system **meets all** below two conditions:

1.	Interface	USB
2.	X.org version	< 1.8.7 or no X-window

Please refer below instructions to do kernel blacklist patch, or driver would **NOT** be functional.

Please append following **RED** section into your source code.

If your kernel is 2.6.33 downwards , please follow section 8-1.1

If your kernel is 2.6.34 upwards , please follow section 8-1.2

10-1.1 kernel 2.6.33 downwards

1. /SourceCode/drivers/input/**evdev.c**

```
static struct input_device_id evdev_blacklist[] =  
{ /* Added by EETI */  
    {  
        .flags = INPUT_DEVICE_ID_MATCH_BUS | INPUT_DEVICE_ID_MATCH_VENDOR,  
        .bus = BUS_USB,  
        .vendor = 0x0EEF,  
    },  
    {}, /* Terminating entry */  
};  
  
static struct input_handler evdev_handler = {  
    .event = evdev_event,  
    .connect = evdev_connect,  
    .disconnect = evdev_disconnect,  
    .fops = &evdev_fops,  
    .minor = EVDEV_MINOR_BASE,  
    .name = "evdev",  
    .id_table = evdev_ids,  
    .blacklist = evdev_blacklist, /* Added by EETI */  
};
```



2. /SourceCode/drivers/input/mousedev.c

```
static struct input_device_id mousedev_blacklist[] =  
{    /* Added by EETI */  
    {  
        .flags = INPUT_DEVICE_ID_MATCH_BUS | INPUT_DEVICE_ID_MATCH_VENDOR,  
        .bus = BUS_USB,  
        .vendor = 0xEEF,  
    },  
    {  
        .flags = INPUT_DEVICE_ID_MATCH_BUS | INPUT_DEVICE_ID_MATCH_VENDOR,  
        .bus = BUS_VIRTUAL,  
        .vendor = 0xEEF,  
    },  
    {},    /* Terminating entry */  
};  
  
static struct input_handler mousedev_handler = {  
    .event = mousedev_event,  
    .connect = mousedev_connect,  
    .disconnect = mousedev_disconnect,  
    .fops = &mousedev_fops,  
    .minor = MOUSEDEV_MINOR_BASE,  
    .name = "mousedev",  
    .id_table = mousedev_ids,  
    .blacklist = mousedev_blacklist, /* Added by EETI */  
};
```

3. /SourceCode/drivers/input/**joydev.c**

```
static const struct input_device_id joydev_blacklist[] =  
{  
    {  
        .flags = INPUT_DEVICE_ID_MATCH_EVBIT | INPUT_DEVICE_ID_MATCH_KEYBIT,  
        .evbit = { BIT_MASK(EV_KEY) },  
        .keybit = { [BIT_WORD(BTN_TOUCH)] = BIT_MASK(BTN_TOUCH) },  
    }, /* Avoid itouchpads and touchscreens */  
    {  
        .flags = INPUT_DEVICE_ID_MATCH_EVBIT | INPUT_DEVICE_ID_MATCH_KEYBIT,  
        .evbit = { BIT_MASK(EV_KEY) },  
        .keybit = { [BIT_WORD(BTN_DIGI)] = BIT_MASK(BTN_DIGI) },  
    }, /* Avoid tablets, digitisers and similar devices */  
    {  
        .flags = INPUT_DEVICE_ID_MATCH_BUS | INPUT_DEVICE_ID_MATCH_VENDOR,  
        .bus = BUS_VIRTUAL,  
        .vendor = 0x0EEF,  
    }, /* Added by EETI */  
    { } /* Terminating entry */  
};  
  
static struct input_handler joydev_handler = {  
    .event = joydev_event,  
    .connect = joydev_connect,  
    .disconnect = joydev_disconnect,  
    .fops = &joydev_fops,  
    .minor = JOYDEV_MINOR_BASE,  
    .name = "joydev",  
    .id_table = joydev_ids,  
    .blacklist = joydev_blacklist,  
};
```



10-1.2 kernel 2.6.34 upwards

1. /SourceCode/drivers/input/**evdev.c**

```
static bool evdev_match(struct input_handler *handler, struct input_dev *dev)
{
    /* Avoid EETI USB touchscreens */
#define VID_EETI 0x0EEF
    if ((BUS_USB == dev->id.bustype) && (VID_EETI == dev->id.vendor))
        return false;
    return true;
}

static struct input_handler evdev_handler = {
    .event = evdev_event,
    .match = evdev_match, /* Added by EETI*/
    .connect = evdev_connect,
    .disconnect = evdev_disconnect,
    .fops = &evdev_fops,
    .minor = EVDEV_MINOR_BASE,
    .name = "evdev",
    .id_table = evdev_ids,
};
```

2. /SourceCode/drivers/input/**mousedev.c**

```
static bool mousedev_match(struct input_handler *handler, struct input_dev *dev)
{
    /* Avoid EETI USB touchscreens */
#define VID_EETI 0x0EEF
    if ((BUS_USB == dev->id.bustype) && (VID_EETI == dev->id.vendor))
        return false;
    /* Avoid EETI virtual devices */
    if ((BUS_VIRTUAL == dev->id.bustype) && (VID_EETI == dev->id.vendor))
        return false;
    return true;
}

static struct input_handler mousedev_handler = {
    .event = mousedev_event,
```



```
.match = mousedev_match, /* Added by EETI */  
  
.connect = mousedev_connect,  
.disconnect = ousedev_disconnect,  
.fops = &mousedev_fops,  
.minor = MOUSEDEV_MINOR_BASE,  
.name = "mousedev",  
.id_table = mousedev_ids,  
};
```

3. /SourceCode/drivers/input/**joydev.c**

```
static bool joydev_match(struct input_handler *handler, struct input_dev *dev)  
{  
    /* Avoid touchpads and touchscreens */  
    if (test_bit(EV_KEY, dev->evbit) && test_bit(BTN_TOUCH, dev->keybit))  
        return false;  
    /* Avoid tablets, digitisers and similar devices */  
    if (test_bit(EV_KEY, dev->evbit) && test_bit(BTN_DIGI, dev->keybit))  
        return false;  
    /* Avoid EETI virtual devices */  
    #define VID_EETI 0x0EEF  
    if ((BUS_VIRTUAL == dev->id.bustype) && (VID_EETI == dev->id.vendor))  
        return false;  
    return true;  
}  
  
static struct input_handler joydev_handler = {  
    .event = joydev_event,  
    .match = joydev_match,  
    .connect = joydev_connect,  
    .disconnect = joydev_disconnect,  
    .fops = &joydev_fops,  
    .minor = JOYDEV_MINOR_BASE,  
    .name = "joydev",  
    .id_table = joydev_ids,  
};
```



10-2 Kernel patch (kernel 3.8~3.12 with USB resistive)

If your system **meets all** below three conditions:

1.	Interface	USB
2.	Kernel version	3.8.x to 3.12.x
3.	ControllerType	Resistive or SCAP , SAW

Please comment the following **RED** section in your source code.

```
/SourceCode/drivers/hid/hid-core.c
bool hid_ignore(struct hid_device *hdev)
{
...
switch (hdev->vendor) {
...
/*case USB_VENDOR_ID_DWAV:*/
    /* These are handled by usbtouchscreen. hdev->type is probably
     * HID_TYPE_USBNONE, but we say !HID_TYPE_USBMOUSE to match
     * usbtouchscreen. */
    /*if ((hdev->product == USB_DEVICE_ID_EGALAX_TOUCHCONTROLLER ||
        hdev->product == USB_DEVICE_ID_DWAV_TOUCHCONTROLLER) &&
        hdev->type != HID_TYPE_USBMOUSE)
        return true;
    break;*/
...
}
...
}
```