Touch Screen Support for LP-8x3x, LP-8x4x and LP-5000

❶ USB Touch Screen interface

There are six steps to adjusting the USB touch screen calibration with LP-8x41:

STEP1: Make sure the **usbtouchscreen.ko** and **tsdev.ko** were mounted. (Refer to the Fig. 10-11)

```
# lsmod
Module                 Size  Used by    Tainted: P
tsdev                 10024  0
usbtouchscreen         9284  0
8250                  29204  0
8250_linpac            2656  0 [permanent]
slot                  35788  0
pxamci                 8352  0
dm9000x              276180  0
#
```

Fig. 10-11

STEP2: Make sure the microSD card was mounted, which is include **opt** dictionary. (Refer to the Fig. 10-12)

```
# mount
rootfs on / type rootfs (rw)
/dev/root on / type jffs2 (rw)
proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
tmpfs on /var type tmpfs (rw)
shmfs on /dev/shm type tmpfs (rw)
usbfs on /proc/bus/usb type usbfs (rw)
/dev/mmcblk0p1 on /mnt/hda type vfat (rw,fmask=0022,dmask=0022,codepage=cp437,
iocharset=iso8859-1)
/dev/ram0 on /mnt/ramfs type minix (rw)
#
```

Fig. 10-12

STEP3: Users can edit the file : **/etc/init.d/fbman** to modify the setting as below:

❑ When users open the file : **/etc/init.d/fbman**, users can see the following lines :

/usr/sbin/fbset   -n   640x480-60

#/usr/sbin/fbset   -n   800x600-70

It means that the resolution setting is 640*480.

❑ If users want to change the setting to be **800*600**, just remove the "#" mark in line 2 and add the "#" mark in line 1. Please see the following setting result :

#/usr/sbin/fbset   -n   640x480-60

/usr/sbin/fbset   -n   **800x600**-70

STEP 4: Typing '**cat   /proc/bus/input/devices**' to see a list of currently plugged in devices and associated device can be obtained. (Refer to the Fig. 10-13)

```
# cat /proc/bus/input/devices
I: Bus=0003 Vendor=04d9 Product=1702 Version=0101
N: Name="  USB Keyboard"
P: Phys=usb-pxa27x-1.1/input0
S: Sysfs=/class/input/input4
H: Handlers=kbd event0
B: EV=120003
B: KEY=10000 7 ff800000 7ff febeffdf f3cfffff ffffffff fffffffe
B: LED=7

I: Bus=0003 Vendor=04d9 Product=1702 Version=0101
N: Name="  USB Keyboard"
P: Phys=usb-pxa27x-1.1/input1
S: Sysfs=/class/input/input5
H: Handlers=kbd event1
B: EV=3
B: KEY=39fa d801d101 1e0000 0 0 0

I: Bus=0003 Vendor=14e1 Product=6000 Version=a4b4
N: Name="DIALOGUE INC PenMount USB"
P: Phys=usb-pxa27x-1.2/input0
S: Sysfs=/class/input/input6
H: Handlers=event2
B: EV=b
B: KEY=70000 0 0 0 0 0 0 0
B: ABS=3

I: Bus=0003 Vendor=15d9 Product=0a33 Version=0100
N: Name="USB Mouse"
P: Phys=usb-pxa27x-1.3/input0
S: Sysfs=/class/input/input7
H: Handlers=mouse0 event3 ts0
B: EV=7
B: KEY=70000 0 0 0 0 0 0 0
B: REL=103
#
```

Fig. 10-13

STEP5: We are providing the calibration program to test and get the calibration data (Refer to the Fig. 10-14). For example, open a '**Xterm**' windows and run '**calibrator /dev/input/event2**', and then the calibration windows appears.
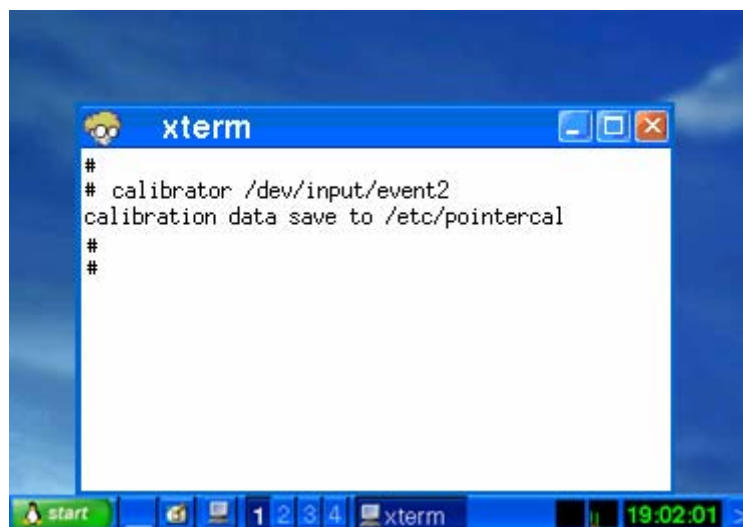

Fig. 10-14

STEP6: After rebooting the LP-8x4x, then the setting will work.

❷ Serial Touch Screen interface

There are three kind of Touch LCD monitor, user need to install respective driver as below:

Module name	Install loadable kernel module
ADP-1080T	/lib/modules/2.6.19/**pm9000.ko**
TPM-4100 / TP-4100/ TP-6150 / TP-2070	/lib/modules/2.6.19/**pm6000.ko**

There are nine steps to adjusting the serial touch screen calibration with LP-8x41:

STEP 1: Check the driver from **/etc/init.d/penmount_serial** (Refer to the Fig. 10-15).

Fig. 10-15

STEP 2: Edit the **/etc/init.d/tsdev_serial** script to modify device mode (Refer to the Fig. 10-16).

Fig. 10-16

STEP 3: To execute script at startup and shutdown.

❑ By default, scrips of serial touch screen are disabled at startup, user can use '**mv**' command to rename files in **/etc/rc2.d** which is contains files used to start processes. After rebooting, it will be executed automatically at boot time (Refer to the Fig. 10-17).

```
# cd /etc/rc2.d
# ls
S04sd              S70slot            S98Xserver
S11ifupdown        S71Serial          S99rmnologin
S20ssh             S72Ramdriver       old
S40inetd           S80hwclock         xS88penmount_serial
S50apache          S90tsdev_usb       xS91tsdev_serial
S60snmp            S97fbman
# mv S90tsdev_usb xS90tsdev_usb
# mv xS88penmount_serial  S88penmount_serial
# mv xS91tsdev_serial   S91tsdev_serial
#
# ls
S04sd              S70slot            S97fbman
S11ifupdown        S71Serial          S98Xserver
S20ssh             S72Ramdriver       S99rmnologin
S40inetd           S80hwclock         old
S50apache          S88penmount_serial xS90tsdev_usb
S60snmp            S91tsdev_serial
#
```

Fig. 10-17

STEP 4: Make sure the **pm9000.ko** or **pm6000.ko** were mounted (Refer to the Fig. 10-18).

```
# lsmod
Module         Size    Used by    Tainted: PF
pm9000         2912    0
8250           29204   2
8250_linpac    2656    0 [permanent]
slot           35788   0
pxamci         8352    0
dm9000x        276180  0
#
```

```
# lsmod
Module         Size    Used by    Tainted: PF
pm6000         2912    0
8250           29204   2
8250_linpac    2656    0 [permanent]
slot           35788   0
pxamci         8352    0
dm9000x        276180  0
#
```

Fig. 10-18

STEP 5: Make sure the microSD card was mounted, which is included **opt** dictionary. (Refer to the Fig. 10-19 and 10-20)

```
# mount  | grep mmc
/dev/mmcblk0p1 on /mnt/hda type vfat (rw,fmask=0022,dmask=0022,
codepage=cp437,iocharset=iso8859-1)
#
```

```
# ls  /mnt/hda
boot     opt
#
```

Fig. 10-19   Fig. 10-20

STEP 6: Users can edit the file : **/etc/init.d/fbman** to modify the setting as below:

❑ When users open the file : **/etc/init.d/fbman**, users can see the following lines :

#/usr/sbin/fbset   -n   640x480-60

/usr/sbin/fbset   -n   **800x600**-70

It means that the resolution setting is 800*600.

❑ If users want to change the setting to be **640*480**, just remove the "#" mark in line 2 and add the "#" mark in line 1. Please see the following setting result :

/usr/sbin/fbset   -n   640x480-60

#/usr/sbin/fbset   -n   800x600-70

STEP 7: Typing '**cat   /proc/bus/input/devices**' to see a list of currently plugged in devices and associated device can be obtained (Refer to the Fig. 10-21).

```
# cat /proc/bus/input/devices
I: Bus=0003 Vendor=04d9 Product=1702 Version=0101
N: Name="  USB Keyboard"
P: Phys=usb-pxa27x-1.3/input0
S: Sysfs=/class/input/input0
H: Handlers=kbd event0
B: EV=120003
B: KEY=10000 7 ff800000 7ff febeffdf f3cfffff ffffffff fffffffe
B: LED=7

I: Bus=0003 Vendor=04d9 Product=1702 Version=0101
N: Name="  USB Keyboard"
P: Phys=usb-pxa27x-1.3/input1
S: Sysfs=/class/input/input1
H: Handlers=kbd event1
B: EV=3
B: KEY=39fa d801d101 1e0000 0 0 0

I: Bus=0003 Vendor=15ca Product=00c3 Version=0512
N: Name="USB Optical Mouse"
P: Phys=usb-pxa27x-1.4/input0
S: Sysfs=/class/input/input2
H: Handlers=mouse0 event2
B: EV=7
B: KEY=70000 0 0 0 0 0 0 0
B: REL=103

I: Bus=0013 Vendor=0031 Product=0000 Version=0100
N: Name="Penmount Serial TouchScreen"
P: Phys=ttyS34/serio0/input0
S: Sysfs=/class/input/input3
H: Handlers=mouse1 event3
B: EV=b
B: KEY=400 0 10000 0 0 0 0 0 0 0 0
B: ABS=3
#
```

Fig. 10-21

STEP 8: We are providing the calibration program to test and get the calibration data (Refer to the Fig. 10-22). For example, open a '**Xterm**' windows and run '**calibrator /dev/input/event3**', and then the calibration windows appears. As show in Fig.10-23.
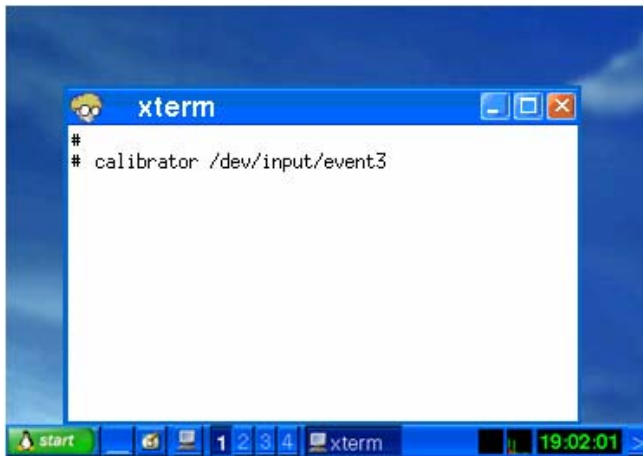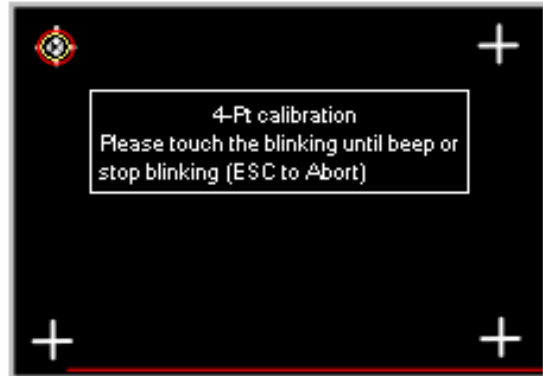

| Fig. 10-22 | Fig. 10-23 |

STEP 9: After rebooting the LP-8x4x, then the setting will work.