



Getting Started with the OMAP35x Android Demo BSP Documentation

Logic PD // Products
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1 Introduction

Logic PD has created an image that demonstrates the Android platform's operability on a Zoom™ OMAP35x Development Kit or Zoom OMAP35x Torpedo Development Kit. This image runs from a bootable SD card.

1.1 Requirements

- Zoom OMAP35x (SOM-LV) Development Kit or Zoom OMAP35x Torpedo Development Kit. The SOMs must have fully released (non-X) processor silicon.¹
 - OMAP35x SOM-LV PN 1012506 or newer
 - OMAP35x Torpedo SOM PN 1013021 or newer
- For best performance, use a SOM with 256 MB SDRAM.
- Linux host machine
- SD card
- SD card reader

1.2 Process Overview

1. Format an SD card for the demo files
2. Copy the demo files to SD card
3. Insert SD card into OMAP35x Development Kit
4. Power on OMAP35x Development Kit to launch the demo

1.3 Testing Environment

This demo and these instructions have been tested under the following environment:

- SOM
 - Torpedo SOM: PN 1013994
 - SOM-LV: PN 1012637
- Display: Logic PD 4.3" WQVGA LCD
- 4 GB Transcend Class 6 SD card
- Ubuntu 10.04 host
- Software
 - X-Loader: 1.4.4ss
 - U-Boot: 2010.09
 - Kernel: 2.6.32
 - Android: Éclair 2.1
- Peripherals tested
 - SD
 - Display
 - Touchscreen
 - USB host and OTG
 - Serial

¹ See the respective SOM Product Change Notifications for additional information.
 OMAP35x SOM-LV PCN 413: <http://support.logicpd.com/downloads/1140/>
 OMAP35x Torpedo SOM PCN 411: <http://support.logicpd.com/downloads/1203/>

2 Format SD Card

2.1 Before Beginning

Move the folder containing the demo files included with this document to the desktop of your Linux host machine; this will help with locating them later in the instructions.

2.2 Setup SD Card Disk Geometry

1. Insert an SD card into your Linux host machine. The card should automatically mount; if not, use the mount command.
2. Use the `df` command to find the device entry that corresponds to the SD card.

```
host:~$ df -hT
```

3. Locate the file system that corresponds to the size of your SD card and is mounted on the SD card reader. In our case, the name associated with the SD card is `sd`.

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
:	:	:	:	:	:	:
:	:	:	:	:	:	:
/dev/sdc1	vfat	3.8G	32K	3.8G	1%	/media/FC30-30A9

4. Use the newly found SD card name to unmount the card. **NOTE:** Throughout these instructions, substitute `sd#` with the name of your SD card (e.g., `sd`).

```
host:~$ sudo umount /dev/sd#1
```

```
host:~$ sudo umount /dev/sd#2 (if second partition exists)
```

5. In order for the Android demo to run from the SD card, the card must be properly formatted with two partitions. Start the `fdisk` utility.

WARNING: Make sure you have selected the proper device before changing the partition table. This action will delete all information from the device.

```
host:~$ sudo fdisk /dev/sd#
```

6. Clear the existing partition table.

```
Command (m for help): o
```

7. Display information about the card.

```
Command (m for help): p
```

```
Disk /dev/sdc: 4 GB, 4035969024 bytes
255 heads, 63 sectors/track, 490 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x116215ee
```

```
Device Boot      Start      End  Blocks   Id  System
```

8. Note the number of bytes on the card. Using the output above, our SD card has 4035969024 bytes.

9. Calculate the number of cylinders your card will have based on the number bytes.

$$\text{cylinders} = \text{bytes} / \text{heads} / \text{sectors} / 512 \text{ (round down to nearest whole number)}$$

For our SD card, this reduces to:

$$490 = 4035969024 / 255 / 63 / 512$$

10. Enter expert mode.

```
Command (m for help): x
```

11. Set the number of heads to 255.

```
Expert command (m for help): h
Number of heads (default 255): 255
```

12. Set the number of sectors to 63.

```
Expert command (m for help): s
Number of sectors (default 63): 63
```

13. Set the number of cylinders to the value calculated in step 9 above.

```
Expert command (m for help): c
Number of cylinders (default 490): 490
```

14. Leave expert mode.

```
Expert command (m for help): r
```

2.3 Create SD Card Partitions

The SD card will require two partitions.

1. Create first partition.

```
Command (m for help): n                (new partition)
Partition type
    e extended
    p primary partition (1-4)
p                                     (primary)
Partition number (1-4): 1                (partition number)
First cylinder (default 1): 1            (starting block of partition)
Last cylinder... (default 490): 9        (last block of partition)

Command (m for help): t                (tag the partition)
Hex code (type L to list codes): c      (FAT32 partition)

Command (m for help): a                (make bootable)
Partition number (1-4): 1                (partition number)
```

2. Create second partition.

```
Command (m for help): n                (new partition)
Partition type
    e extended
    p primary partition (1-4)
p                                     (primary)
Partition number (1-4): 2                (partition number)
First cylinder (default 10): 10          (starting block of partition)
Last cylinder... (default 490): 490     (last block of partition)
```

- Use the print command to verify the two partitions were created.

```
Command (m for help): p                (print partitions)
```

- Confirm that you see two partitions, the first being a FAT32 partition and the second a Linux partition.

Device	Boot	Start	End	Blocks	Id	System
/dev/sdc1	*	1	9	72261	c	FAT32 LBA
/dev/sdc2		10	490	3863632+	83	Linux

- Commit the changes to the card and quit.

```
Command (m for help): w
```

- Change directories to the folder containing the demo files—in these instructions, the directory is a folder named LPDAndroid located on the desktop.

```
host:~$ cd Desktop/LPDAndroid
host:~/Desktop/LPDAndroid$
```

- Format the two partitions.

NOTE: Formatting the Linux partition will take some time; please wait until you are returned to your `host:~/Desktop/LPDAndroid` prompt.

```
host:~/Desktop/LPDAndroid sudo mkfs.vfat -n boot -F32 /dev/sd#1
host:~/Desktop/LPDAndroid sudo mkfs.ext3 -L rootfs /dev/sd#2
```

- Unmount your SD card.

```
host:~/Desktop/LPDAndroid sudo umount /dev/sd#1
host:~/Desktop/LPDAndroid sudo umount /dev/sd#2
```

3 Copy Demo Files to SD Card

1. Mount the first partition and copy contents.

```

host:~/Desktop/LPDAndroid  sudo mkdir /tmp/fat
host:~/Desktop/LPDAndroid  sudo mount -tvfat /dev/sd#1 /tmp/fat
host:~/Desktop/LPDAndroid  sudo tar -xvf boot.tar.gz -C /tmp/fat MLO
host:~/Desktop/LPDAndroid  sync
host:~/Desktop/LPDAndroid  sudo tar -xvf boot.tar.gz -C /tmp/fat u-boot.bin
host:~/Desktop/LPDAndroid  sudo tar -xvf boot.tar.gz -C /tmp/fat uImage
host:~/Desktop/LPDAndroid  sudo tar -xvf boot.tar.gz -C /tmp/fat boot.scr
host:~/Desktop/LPDAndroid  sync
host:~/Desktop/LPDAndroid  sudo umount /tmp/fat
host:~/Desktop/LPDAndroid  sudo rm -rf /tmp/fat

```

2. Mount the second partition and copy contents.

```

host:~/Desktop/LPDAndroid  sudo mkdir /tmp/ext3
host:~/Desktop/LPDAndroid  sudo mount /dev/sd#2 /tmp/ext3
host:~/Desktop/LPDAndroid  sudo tar -xvf rootfs.tar.gz -C /tmp/ext3
host:~/Desktop/LPDAndroid  sync
host:~/Desktop/LPDAndroid  sudo umount /tmp/ext3
host:~/Desktop/LPDAndroid  sudo rm -rf /tmp/ext3

```

3. Unmount both partitions of your SD card.

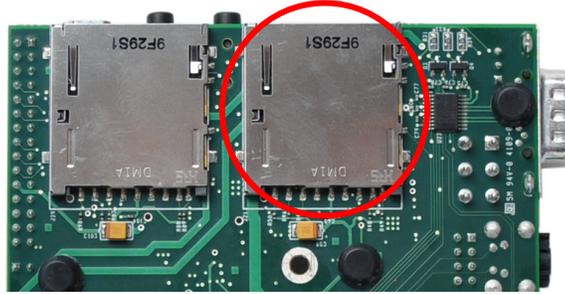
```

host:~/Desktop/LPDAndroid  sudo umount /dev/sd#1
host:~/Desktop/LPDAndroid  sudo umount /dev/sd#2

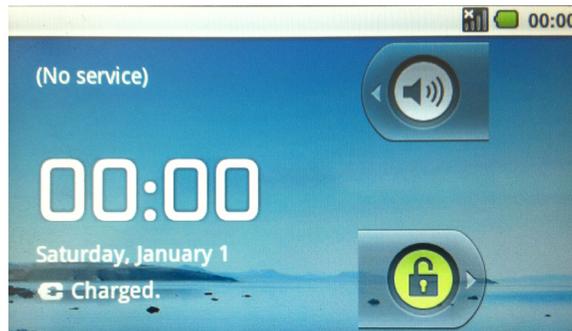
```

4 Launch Demo on Development Kit

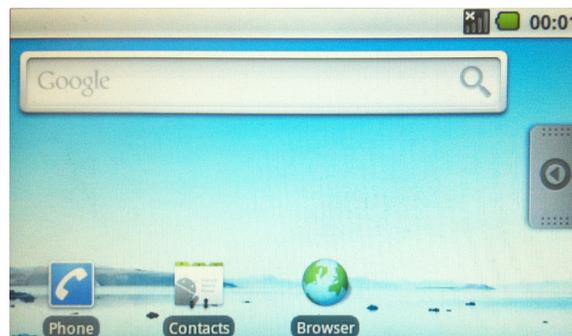
1. Remove the SD card from your Linux host machine.
2. Insert the SD card into SD card slot on your OMAP35x Development Kit (the bootable SD card slot on the Zoom OMAP35x Torpedo Baseboard is located on the bottom of the board and is the slot closest to the middle of the board—circled in figure below).



3. Make sure your OMAP35x Development Kit is setup according to its QuickStart Guide.²
4. Power on your OMAP35x Development Kit. After a moment, you will see the Logic PD logo appear on the 4.3" LCD panel and then the Android logo.
5. When the Android demo has finished booting, a lock screen will appear, as shown below. Place your finger on the lock and slide up to unlock the screen.



6. The Android GUI will then appear. You are now ready to demo the features of the Android platform.



² Zoom OMAP35x Development Kit QuickStart Guide: <http://support.logicpd.com/downloads/1097/>
Zoom OMAP35x Torpedo Development Kit QuickStart Guide: <http://support.logicpd.com/downloads/1198/>

5 Summary

This Getting Started Guide provided the necessary steps to run an Android platform demo on your Zoom OMAP35x Development Kit.

At this time, Logic PD does not have a full Android BSP available for our standard OMAP35x product line. However, if you need assistance with developing Android for your end-product application, our experienced design service engineers may be able to help. Please contact the [Logic PD sales team](#) for more details.