

OpenMoko

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Build_{online}

Add the following `/etc/apt/sources.list`

```
deb http://www.openembedded.org/dl/ packages/
```

Install openembedded

```
apt-get update
```

```
apt-get install openembedded-essential
```

```
mkdir /home/<user>/moko
```

```
cd /home/<user>/moko
```

Build_{online}

Install dependancy packages

```
apt-get install python-pysqlite2 help2man \  
gcc-3.4 gcc-3.4-base  
apt-get install zlibg zlibg-dev libqt4-core libqt4-gui
```

Install openmoko

```
wget http://www.rwhitby.net/files/openmoko/Makefile  
make setup  
make openmoko-devel-image
```

Build_{offline}

Initial downloads/setup

```
wget http://www.rwhitby.net/files/openmoko/Makefile  
make setup  
source setup-env  
bitbake -c fetchall openmoko-devel-image
```

Then, you can build it offline

```
make openmoko-devel-image
```

Qemu

The screenshot displays a Linux desktop environment. At the top, there is a panel with 'Applications' and 'Places' buttons, followed by a row of application icons. The system clock in the top right corner shows 'Fri Jul 20, 21:33'. The main workspace contains two windows:

- QEMU:** A terminal window displaying the boot logs of a virtual machine. The text includes: 'Starting the hotplug events dispatcher udevd', 'Synthesizing the initial hotplug events', 'Waiting for /dev to be fully populated', 'Remounting root file system...', 'mount: Mounting proc on /proc failed: Device or resource busy', 'Bluetooth: Core ver 2.11', 'NET: Registered protocol family 31', 'Bluetooth: HCI device and connection manager initialized', 'Bluetooth: HCI socket layer initialized', 'Bluetooth: HCI USB driver ver 2.9', 'usbcore: registered new interface driver hci_usb', 'Bluetooth: L2CAP ver 2.8', 'Bluetooth: L2CAP socket layer initialized', 'Bluetooth: HIDP (Human Interface Emulation) ver 1.2', 'ohci_hcd: 2006 August 04 USB 1.1 'Open' Host Controller (OHCI) Driver', 's3c2410-ohci s3c2410-ohci: S3C24XX OHCI', 's3c2410-ohci s3c2410-ohci: new USB bus registered, assigned bus number 1', 's3c2410-ohci s3c2410-ohci: irq 42, io mem 0x49000000', 'usb usb1: configuration #1 chosen from 1 choice', 'hub 1-0:1.0: USB hub found', 'hub 1-0:1.0: 3 ports detected', 'Bluetooth: RFCOMM socket layer initialized', 'Bluetooth: RFCOMM TTY layer initialized', 'Bluetooth: RFCOMM ver 1.8', 'mapped channel 0 to 0', 'mmc_set_power(power_mode=0, vdd=0)', 's3c2410-sdi s3c2410-sdi: powered down.', 'mmc_set_power(power_mode=1, vdd=20)', 's3c2410-sdi s3c2410-sdi: running at 0kHz (requested: 0kHz).', 'mmc_set_power(power_mode=2, vdd=20)', 's3c2410-sdi s3c2410-sdi: running at 130kHz (requested: 129kHz).', 'mmc_set_power(power_mode=2, vdd=20)', 's3c2410-sdi s3c2410-sdi: running at 130kHz (requested: 129kHz).', 's3c2410-sdi s3c2410-sdi: initialization done.', 'mmc_set_power(power_mode=2, vdd=20)', 's3c2410-sdi s3c2410-sdi: running at 130kHz (requested: 129kHz).', 'mmc_set_power(power_mode=0, vdd=0)', 's3c2410-sdi s3c2410-sdi: powered down.', 'wm8753: WM8753 Audio Codec 0.16', 'asoc: WM8753 HiFi (->) s3c24xx-i2s mapping ok', 'asoc: WM8753 Voice (->) Bluetooth mapping ok', 'usb 1-3: new full speed USB device using s3c2410-ohci and address 2', 'usb 1-3: configuration #1 chosen from 1 choice', 'Setting up IP spoofing protection: rp_filter.', 'Configuring network interfaces... arp socket failed: Address family not supported by protocol', 'unable to obtain ARP socket: Address family not supported by protocol done.', 'Starting portmap daemon: portmap.'
- The GIMP:** An image editor window showing a large, light blue circular brushstroke on a white background. The 'Paintbrush' tool options are visible, including 'Opacity: 100.0', 'Mode: Normal', and 'Brush: Circle (11)'. There are also checkboxes for 'Pressure sensitivity', 'Fade out', 'Incremental', and 'Use color from gradient'.

The taskbar at the bottom shows several open applications: '[usb-de-0.3.pdf]', '[shaks@debia...', '[Buddy List]', 'QEMU', and 'The GIMP'. The system tray on the right contains icons for window management and system status.

Standalone Application Host

The screenshot shows a Linux desktop environment with a terminal window running a stylus application. The application window, titled "Stylus Demo", has a menu bar with "Filter Menu" and a table with two columns: "Name" and "Cell Phone". The table contains the following data:

Name	Cell Phone
Sean	1111111111
Mickey	2222222222
Harald	3333333333
Tom	2222222222
Steven	02134567890

Below the table is a search icon and four empty input fields. At the bottom of the application window is a text area with the following text:

Add your widget for showing details for the selected data entry here

The terminal window in the background shows the following output:

```
shaks@debian: /home/moko/openmoko/trunk/src/target/OM-2007/examples/openmoko-stylus-demo/src
shaks@debian: /home/moko/openmoko-stylus-demo:
** (openmoko-stylus-demo:16770): DEBUG: openmoko-stylus-demo entering main loop
```

The desktop environment includes a taskbar at the top with various application icons and a system tray on the right showing the date and time as "Sat Jul 28, 17:53". The bottom taskbar shows the current window titles: "shaks@debian: /home/moko/open...", "docs - File Browser", "Stylus Demo", and "The GIMP".

Qemu

The screenshot shows a Linux desktop environment with the following components:

- Terminal Window (shaks@debian: ~):** Displays the output of a QEMU session. The output includes system boot logs, hardware status messages (e.g., "neo_gsm_switch: GSM enabled.", "neo_modem_switch: Modem powered up."), and a command to run QEMU: `(cd build/qemu ; arm-softmmu/qemu-system-arm \ -M neo -m 130 -usb -show-cursor \ -mtdblock openmoko/openmoko-flash.image \ -kernel openmoko/openmoko-kernel.bin)`.
- QEMU Window:** Displays a virtual OpenMoko dialer interface. It features a numeric keypad (1-9, *, 0, #), a "Delete" button, a "History" button, and a "Dial" button. The status bar at the bottom of the window reads "OpenMoko TaskManager".
- The GIMP Window:** Shows the GIMP application with the "Paintbrush" tool selected. The "Paintbrush" panel is visible, showing settings for Opacity (100.0), Mode (Normal), and Brush (Circle (11)).

The desktop environment includes a top panel with application icons and a system tray showing the date and time as "Fri Jul 20, 21:35". The bottom panel shows the taskbar with open windows: [usb-de-0.3.pdf], shaks@debian: ~, [Buddy List], QEMU, The GIMP, and [qemu-linux-booting-...].

Standalone Makefile

```
/* main.c */  
#include <stdio.h>  
  
int main (int argc, char** argv)  
{  
    printf("Hello World!\n");  
    return 0;  
}
```

~/.bashrc

```
export PKG_CONFIG_PATH= \  
    /home/katie/moko/build/tmp/staging/\  
    arm-angstrom-linux-gnueabi/lib/pkgconfig
```

Standalone Makefile

TARGET = foo

OM=/home/katie/moko

CC = \$(OM)/build/tmp/cross/arm-angstrom-linux-gnueabi/bin/gcc

**LD_FLAGS = -L\$(OM)/build/tmp/staging/arm-angstrom-linux-gnueabi/lib \
-Wl,-rpath-link,\$(OM)/build/tmp/staging/arm-angstrom-linux-gnueabi/lib -Wl,-O1 \
-g -o**

SRC = main.c

**PKG = `\$(OM)/build/tmp/staging/i686-linux/bin/pkg-config --cflags --libs openmoko-
libs gtk+-2.0 libgsmd`**

all:

`\${CC} `\${LD_FLAGS} \$(TARGET) \$(SRC) \$(PKG)

send:

scp \$(TARGET) root@neo:/home/root

clean:

rm -f *~ \$(TARGET)

Autotools

```
## src/Makefile.am
```

```
INCLUDES = \  
    $(PACKAGE_CFLAGS)
```

```
AM_CFLAGS =\  
    -Wall\  
    -g
```

```
bin_PROGRAMS = helloworld
```

```
helloworld_SOURCES = \  
    main.c
```

```
helloworld_LDFLAGS = ` ${OMDIR}/build/tmp/staging/i686-linux/bin/pkg-config  
--cflags --libs libmokoui2 libgsmd`
```

```
helloworld_LDADD = \  
    $(PACKAGE_LIBS)
```

Autotools

helloworld.bb

DESCRIPTION = "Hello World"

AUTHORS = "Katie Holmes"

HOME PAGE = "http://free-opensource.qvantel.net"

SECTION = "openmoko/pim"

PRIORITY = "optional"

LICENSE = "GPL"

DEPENDS += "libmokoui2 libgsmd"

inherit autotools

SRC_URI = "file:///home/katie/temp/helloworld.tar.bz2"

S = "\${WORKDIR}/helloworld"

References

- <http://wiki.openmoko.org>
- <http://free-opensource.qvantel.net>