Agenda

- What is “OpenLink™”? 
- Workshop intro 
- Board setup 
- Getting WLAN to work on BeagleBoard 
- The OpenLink Challenge 
- Wrap-up 
  - Demo – Ubuntu 
  - Prizes 
  - What’s next
What is “OpenLink™”? 

- An open source initiative
- Wireless connectivity technologies
  - Wi-Fi™
  - Bluetooth®
  - FM
- Roadmap:
  - Bluetooth Low Energy
  - ANT
  - Zigbee®
  - NFC
What is “OpenLink™”? 

- Open link drivers available today 
- Part of mainline Linux kernel 
- Easily attach to open source development platform such as BeagleBoard and PandaBoard
What is “OpenLink™”?

Website – OpenLink.org

- Community
- News
- Projects
- Support
- Platforms
- Resources

... And more to come...
Workshop Outline

- Short hands-on demo
- Learn how to connect to an AP from the CLI
- Your chance to get your own BeagleBoard with a WLAN daughter card!
Board Setup

- Pre-requisite: minicom (or another terminal app)
- Insert the micro-SD card
- Connect the USB-serial adapter
- Connect the USB cable (power supply)
Serial Console

- Start minicom
  - minicom -s -o
    - /dev/ttyUSB0
    - 115200 8N1
    - No HW/SW flow control

- Log in to the serial console
  - user: root
  - pwd: rootguri
BeagleBoard boot basics

- Two-phase boot
  - X-Loader (MLO)
  - u-boot.bin
    - Environment setup
    - Kernel parameters

- Kernel
  - Mainline-based (2.6.39-rc1)
  - One patch for the WLAN daughtercard
Connecting to an open Access Point

- Set your own MAC address
  
  `ifconfig wlan0 hw ether 08:00:28:00:00:<number>`
  `ifconfig wlan0 up`

- Using the iw tool to scan
  
  `iw wlan0 scan`

- Connecting to an open AP
  
  `iw wlan0 connect -w OpenLink`
  `dhclient wlan0`
  `ping 192.168.1.1`

- Disconnect
  
  `iw wlan0 disconnect`
Connecting to a WEP AP

- Connecting with iw using a pre-defined key
  ```
  iw wlan0 connect -w OpenLinkWEP key 0:00deadbeef
  ```

- Connecting with wpa_supplicant
  ```
  vim wep.conf
 (ctrl_interface=DIR=/var/run/wpa_supplicant
  network={
  ssid="OpenLinkWEP"
  scan_ssid=1
  key_mgmt=NONE
  wep_key0=00deadbeef
  }
  wpa_supplicant -B -i wlan0 -c wep.conf
  wpa_cli status
  dhclient wlan0
  ping 192.168.1.1
  ```
The OpenLink™ Challenge

- Connect to “OpenLinkWPA” using WPA2
  - wpa_supplicant
  - PSK=“openlink.org”
  - DHCP
- Winners – First 3 setups to be assigned an IP address by the AP (dhcp)
- Prize – you get to keep your BeagleBoard + WLAN card

Note: winner will be the owner of the laptop in use
WRAP UP
Demo – Ubuntu w/ OpenLink
Prizes
What’s Next

🔗 Demo table outside
  – register your project to win a BeagleBoard + WLAN card

🔗 BeagleBoard workshop – tomorrow at 9am
Additional Resources

- Register your project to win a BeagleBoard + Wi-Fi™ card
  http://OpenLink.org

- Linuxwireless.org – visit for additional information

- Linuxwireless.org – visit for additional BeagleBoard related
  Ubuntu - http://elinux.org/BeagleBoardUbuntu
  Debian - http://elinux.org/BeagleBoardDebian

- PandaBoard related
  http://www.pandaboard.org/content/resources/software

- wl12xx.git
  git://git.kernel.org/pub/scm/linux/kernel/git/luca/wl12xx.git
QUESTIONS?