Agenda

- Introduction to Raspberry Pi
- Building Toolchain
- Running Fedora
- Challenges
- Q&A
Introduction to Raspberry Pi

- The Raspberry Pi is a credit-card-sized single-board computer developed in the UK by the Raspberry Pi Foundation with the intention of stimulating the teaching of basic computer science in schools.
RPi Spec.

- SoC: Broadcom BCM2835
- GPU: Broadcom VideoCore IV
- Memory (SDRAM): 512 MB
- USB 2.0 ports: 2
- Onboard storage: SD / MMC / SDIO card slot
- Onboard network: 10/100 Ethernet (RJ45) via USB hub
- Power ratings: 700 mA
Building Toolchain

• Why?
• How?
  - crosstool-ng
• C Flags?
  - -mfpu=fp
  - -mfloat-abi=hard
  - -march=armv6zk
  - -mtune=arm1176jzf-s
Running Fedora

- Fedora ARM Status
  - DOES NOT support RPi officially
  - Why?
- Current Stable Release: Fedora 17
  - rootfs / distro
  - ARMv5
  - ARMv7 => hard float point support
- Latest Release: Fedora 18 Beta
  - distro
  - ARMv5 => Remix Only
  - ARMv7 => hard float point support
- Download Page
  - http://fedoraproject.org/get-fedora-options#2nd_arches
Instructions

- Clone following git repos:
  - git://github.com/raspberrypi/linux.git
  - git://github.com/raspberrypi/tools.git
  - git://github.com/raspberrypi/firmware.git
- Compile Kernel and create kernel.img
- Prepare 2 partitions(vfat + ext4) on SD card
- Install firmware, bootloader and kernel.img
- Extract Fedora rootfs image
- Install kernel modules
- Create proper config.txt and cmdline.txt files
- Boot!
Challenges

- Instructions Failure
- Atomic Operations
- SFP v.s. HFP
- USB / Ethernet Issue(s)
- Performance
Q&A
Thanks!