Linaro Year 6
BKK16
George Grey, Linaro CEO
Why do we need Linaro?

ARM’s business model leads to an unprecedented level of innovation in SoCs

Intel’s quarterly R&D budget is over 2x ARM’s annual revenue

Linaro is where the ARM partnership works together to invest in the ecosystem
Our mission: LEADING COLLABORATION IN THE ARM ECOSYSTEM
Trends

- Linaro initial focus was mobile
  - Continues to drive new technology across the ecosystem
- ARM from sensors to the data-center
- OSS is in ALL market segments
- Product developers need multi-vendor device, gateway and cloud solutions
Linaro: End-to-end ARM-based Solutions

**LITE**
- IoT client
- Smart sensors
- Embedded devices

**LMG**
- Phone
- Tablet
- Wearable

**LHG**
- Home entertainment
- Sensor hub
- Gateways

**LNG**
- Networking
- Data plane (ODP)

**LEG**
- SDI
- Developer Cloud
- Big Data
- HPDA
LITE IoT and Embedded

- Proposed new Linaro Segment Group
- Interim SC and projects underway
  - Reference IoT software across Cortex A and R/M
    - RTOS, GPIO, I2C, SPI, BLE, 6LoWPAN, CoAP, DTLS, Thread, MQTT …
    - Sensor/Smart Device/Gateway
  - Open Source Software from the sensor to the cloud
LMG Mobile

- Continued focus
- Volume, competition, drives innovation
  - Google Android, Acadine H5OS
  - Performance, power management, footprint
  - Project Ara
- Features migrate to IoT and Enterprise
LHG Digital Home

- Open Source Platforms
  - Android
  - Comcast RDK
  - China TVOS

- Focus on security and media frameworks
LNG Networking

● ODP - APIs for dataplane SoC acceleration
  ○ “Monarch” release Q2
  ○ “Tiger Moth” release Q4

● ToR switch, Smart NICs, Edge devices/NFV
  ○ Leverage ODP for HW acceleration
LEG Enterprise

- Platform for the data center
  - ARM SoCs for the data center & cloud computing
- Firmware
- SDI (OpenStack), OPNFV, Big Data (Hadoop, Spark/MapR), HPC
Cross vendor community hardware

- Key enabler for reference software platform
- Mezzanine ecosystem for peripherals & sensors
*Qualcomm DragonBoard 410C*

Marvell IAP140

LeMaker HiKey

uCRobotics Bubblegum-96

CircuitCo HuskyBoard

AMD Opteron A1120

96Boards EE

LeMaker 7” LCD touchscreen display

STMicro and Seeed Mezzanines

*#5 in top 10 best Hacker Boards of 2015*

linux.com June 2015
DragonBoard 410c

Supported OSes
- Android
- Snappy
- Brillo
- Windows 10

Supported IoT Platforms
- AT&T
- Amazon Web Services
- IBM Bluemix
- M2X
- Microsoft Azure
AOSP Announcement

- Support for HiKey 64 bit Octa Cortex-A53 96Boards is now available in AOSP public tree

- A community board with ongoing support in AOSP will help developers and peripheral vendors to accelerate adoption in new Android versions
Reference Platform

- End to end reference open source software
  - To provide cross-SoC reference implementation
  - Firmware to application use cases

- Why?
  - A reference “how to” implementation
  - Over time will benefit from multi-vendor and community participation
  - Saves duplicated engineering effort
Reference Platform

- Tested on 96Boards & member hardware*
  - Releases for Mobile/Embedded & Enterprise
    - Include latest Linux distributions - Android, Debian, CentOS
    - IoT, Digital Home and Networking versions coming soon
  - Designed to be easily ported for new SoC enablement
- Quarterly release cadence


*Selected member-requested hardware by arrangement
16.03 RPB Kernel

- Unified kernel tree for CE and EE Builds
  - Supports HiKey, DragonBoard 410, Huawei D02, APM X-Gene, HP Proliant m400 and AMD Overdrive
- Linux 4.4.0 based
  - Including under-review topic branches to extend hardware support for the available platforms
  - Device-Tree support for CE
  - UEFI, ACPI and PCIe support for Enterprise
  - Single kernel config for all platforms in arch/arm64/configs/distro/config
Developer Cloud

- Linaro Cloud for Developers
- Why?
  - A reference “how to” OSS implementation
  - To provide public and restricted access to ARM servers
  - For developers, ISVs and end users to evaluate/utilize member hardware with forums and developer support
  - For Cloud providers who want a known starting point to provide ARM server infrastructure
Developer Cloud

- Run on Linaro and Member/Partner facilities
  - Linaro Cambridge and Austin locations today
    - Linaro China in Q2/Q3
    - We expect members & member partners to participate
    - All participating facilities can be federated
    - Users will be able to request and purchase instances

- By developers for developers

- Quarterly release cadence
Demonstrations
96Boards CE LCD Display

Tony Zhang, LeMaker

- From LeMaker, Shenzhen China
- Display kit with display and 96Boards mezzanine interface
- 7” Diagonal, 1280x800 pixels with touchscreen
- Target availability May 2016
96Boards VR Demonstration
Yang Zhang, Director 96Boards, Linaro

- Development & Deployment on target board
- Reference Software Platform (Debian) + OSVR VR stack and Graphics
- Hardware
  - HiKey CE 2GB RAM from LeMaker (Mali 450-MP4 GPU)
  - OSVR headset and tracking devices*
- Software
  - OSVR Core and SDK
  - Mesa driver
  - OpenGLES 2.0
  - OpenSceneGraph

* http://www.razerzone.com/osvr-hacker-dev-kit
96Boards EE
Jon Masters, Red Hat

- CircuitCo HuskyBoard
- AMD Opteron A1120
  Quad-core A57
- GBit Ethernet, USB 3.0, PCIe and SATA
- UEFI/ACPI Firmware
- RHELSA 7.2 (DP)
96Boards EE - Product Introduction

LeMaker Cello

- AMD Opteron A1120, Quad-core A57
- GBit Ethernet, USB 3.0, PCIe and SATA
- UEFI/ACPI firmware
- 100% Software Compatible with HuskyBoard
- Preorder today for Q2 delivery $299

http://www.lenovator.com/product/103.html
Developer Cloud Demonstration
Martin Stadtler, Director Linaro Enterprise Group

- OpenStack Interface and Overview
- Launching a Server Instance from Austin, TX USA
- Connecting to ownCloud
- Run a photo uploading competition
- Prize for the best picture of the week
Developer Cloud Demonstration

- Login to the BKK Owncloud at: bkkcloud.linaro.org/owncloud
- Use your Linaro Login (or sign up at register.linaro.org)
- Download the Android or iOS client and share your BKK16 photos into the shared “Connect” folder
Thank you