The status quo and the future of 96Boards

Yang Zhang
Director of 96Boards
What’s 96Boards

- Recognised ARMV7/8 open specifications
- SoC-independent
- Low cost rapid prototyping and product development platform
- Tailored for different segment requirements
- A single developer community, sharing solutions
- Open to all developers
- Hardware modules are portable across all 96Boards
- Linaro help available to have the platform fully upstream
So which one do I choose, really?
Paradox of Choice?

Choosing well is especially difficult for those determined to make only the best choices.

- Barry Schwartz
SoC Independent

*Qualcomm DragonBoard 410C

HiSilicon HiKey

ActionSemi Bubblegum-96

Altera Chameleon

NXP LMX7

AMD Opteron A1120 EE - Cello

MediaTek Helio X20

Socionext MB86S71

Qualcomm SD 600eval

HiSilicon Poplar TV

Seeed Carbon - STMIoT

A few others...
96Boards Specifications

LMG → LHG → LNG → LEG → LITE

- 96Boards TV Platform
- 96Boards Networking Platform
- 96Boards CE Spec
- 96Boards EE Spec
- 96Boards IE Spec
There is beauty in Singularity.
Single Community Sharing Solutions

Aerocore-2 drones & Quadcopters

Eureka Automotive

Marvell Andromeda Box

Camera Mezzanine

Robomezzi

STMicro and Seeed Mezzanines

Dual-camera module with Display

LeMaker 7” LCD touchscreen display
Single Community Sharing Solutions
96Boards Steering Committee
96Boards.org Traffic

Source of Traffic

Traffic by Region

All Downloads By Country

96Boards Forum activity
OPEN HOURS
Talk to the 96Boards team

Every Thursday - 4pm BST on BlueJeans

www.96Boards.org/openhours
What’s new?
Qualcomm SD600eval 96Boards CE Ext. - Arrow

- Snapdragon 600 processor APQ8064 32-bit
- Quad-core Krait 300 CPU 1.7GHz, Adreno 320 GPU
- 2GB PoP LPDDR2 533MHz with 16GB eMMC
- SATA and SD 3.0 (UHS-I)
- 1080p@30fps HD video playback with H.264 (AVC)
- PCM/AAC+/MP3/WMA, ECNS, Audio
- WLAN 802.11 a/b/g/n/ac 2x2 Dual-Band, Bluetooth 4.0/LE with on-board as well as external antenna
- GPS/GLONASS with external antenna
- 3 USB 2.0 Micro AB
- PCIe to Gigabit Ethernet via AR8151
- 40pin LS and 60pin HS expansion connector
- Vendor build Android 5.1 and Ubuntu/Debian

96boards.org
STM B2260 96Boards CE Ext

- STiH410EJB CANNES2 multimedia server chip, Dual Cortex A9 with Mali 400
- 1GByte DDR3L-SDRAM
- Up to 64GB with boot option SDHC
- Realtek RTL8723BU-combo Module
- HDMI Type A + ESD protection
- 2x USB Type A, 1x USB Micro AB
- 1 SATA connector
- Gigabit Ethernet
- H.264 hardware decoding
- JTAG
- 40pin LS and 60pin HS expansion connector
- Target Linaro Consumer Reference Platform
MediaTek X20 96Boards CE - Archermind

- Deca-core ARM Cortex-A53/A72 64 bit
- Mali-T880 GPU up to 800MHz
- 2GB LPDDR3 with 8GB EMMC5.1
- GPS and Wi-Fi 802.11 a/b/g/n
- Bluetooth 4.1
- 3 x USB 2.0
- Micro SD card slot (SD3.0)
- Display: HDMI Type A 1080p HD @ 30fps
- 40-pin Low Speed expansion connector
- 60-pin High Speed expansion connector
- 16-pin analogue audio expansion connector
- Crypto extensions
- Android 6.0 Vendor build

96boards.org/x20
STM Carbon 96Boards IoT - Seeed

- STM32F401RET6 ARM® Cortex®-M4F processor
- 512KB Flash, 96KB RAM
- Nordic nRF51 Bluetooth v4.2 compliant Onboard antenna
- USB Power and OTG
- FTDIUART
- 3.3V I/O
- 2x15pin low speed connector
- Zephyr enabled, upstream in progress

96boards.org
RDA 96Boards IoT - Orange Pi - i96

- RDA ARM Cortex-A5 32bit
- Integrated 2Gb LPDDR2 SDRAM, 4Gb 8Bit 4K SLC NAND
- Extremely low cost
- MicroSD
- MicroUSB or VBAT 5V POWER
- 2x USB 2.0
- CSI camera 24pin 0.5mm FFC
- WiFi (RTL8189FTV)
- 40pin LS Expansion Connector
- Vendor build - Ubuntu

96boards.org
HiSilicon Poplar 96Boards TV - Tocoding

- Quad-core ARM Cortex-A53 64 bit HiSilicon Hi3798CV200 Mali T720
- DDR3/3L/4 SDRAM interface, 2 GB
- Two USB 2.0 ports, One USB 3.0 port
- 1 GBe Ethernet
- PCIe 2.0 interfaces
- 8pin JTAG
- Standard 160×120 mm 96Boards Enterprise Edition form factor
- 802.11AC 2*2 with Bluetooth
- Smart Card and 2X12pin Tuner Interface
- 2x20pin low speed connector
- Android 5.1.1 Vendor build
MStar Kava 96Boards TV

- MSO9580A quad-core 64-bit ARM Cortex-A53 CPU up to 1.5 GHz per core, up to 13800 DMIPS, Mali-T820
- 2 GB DDR3, 8MB SPI with 8GB eMMC
- micro SD card slot (3.0), PCIe 2.0
- HDMI 2.0 Input/Output (HDCP 2.2 up to 4K @ 60Hz)
- H.265/VP9 up to 4Kx2K@60fps
- H.264 HP/5.0 up to 4K2K@30fps
- S/PDIF (optical) Audio
- 10/100/1000 Base-T
- 1x USB 3.0, 2x USB 2.0 host, 1x UART
- Smart Card and 2X12pin Tuner Interface
- 2x20pin LS connector
What’s next?
Altera Chameleon CE  NXP i.MX7 96Boards CE
Wouldn’t it be nice?

- Latest SoCs technology
- Path to productization
- Awesome user experience
- Generic platform for rapid development
- Standardization where everyone has to reinvest
- Taking advantage Linaro and its’ members collaborative engineering output
- Low cost
- Wide distribution OS support
- Upstream support
We want to be better at ...

- Improve cross boards out of box user experience
  - Usability is the key
  - Documentation
  - Universal I/O support
  - Tutorials, a lots of them!
We want to be better at ...

- Improve cross boards out of box user experience
- Showcase projects
  - Automotive
  - Robotics/Drones
  - Virtual Reality
  - Artificial Intelligence
We want to be better at ...

- Improve cross boards out of box user experience
- Showcase projects
- Focused development plans for two different tiers of 96Boards
  - Community 96Boards
    - Vendor built software, hosted on 96Boards.org
    - 96Boards hardware specification compliance
    - 96Boards documentation compliance
  - Linaro Reference Software Certified 96Boards
    - Linaro Reference Platform Kernel (RPK)
    - Other software (firmware, bootloader, graphics, distribution) follow 96Boards software compliance
    - 96Boards hardware specification compliance
    - 96Boards documentation compliance
We want to be better at ...

- Improve cross boards out of box user experience
- Showcase projects
- Focused development plans for two different tiers of 96Boards
- Bring out 96Boards Networking platform with partners
  - One of the most exciting space for ARM
  - 96Boards Networking Platform specification
  - Multiple SoCs
  - Multiple tiers
We want to be better at ...

- Improve cross boards out of box user experience
- Showcase projects
- Focused development plans for two different tiers of 96Boards
- Bring out 96Boards Networking platform with partners
- Better exposure to wider community inc. product designers, application developers, makers, ODMs, higher education institutions etc.
  - Engaging distribution partners in 96Boards program
  - Engaging high education institutions
  - More manufacturer partners with diversified designs
We want to be better at ...

- Improve cross boards out of box user experience
- Showcase projects
- Focused development plans for two different tiers of 96Boards
- Bring out 96Boards Networking platform with partners
- Better exposure to wider community inc. product designers, application developers, makers, ODMs, higher education institutions etc.
- Encourage Mezzanine development and cross-adoption
  - Example, currently shipping ~500 per Mezzanine design
  - Clear demand of Mezzanine from target audience of the boards
  - Clear requests from multiple SoC vendors
  - 96Boards partner program outreach
...and things you consider important, and are willing to help ...
Thank You

#LAS16

For further information: www.linaro.org
LAS16 keynotes and videos on: connect.linaro.org