

# ARMing Open Source



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The Architecture for the Digital World®

**ARM**



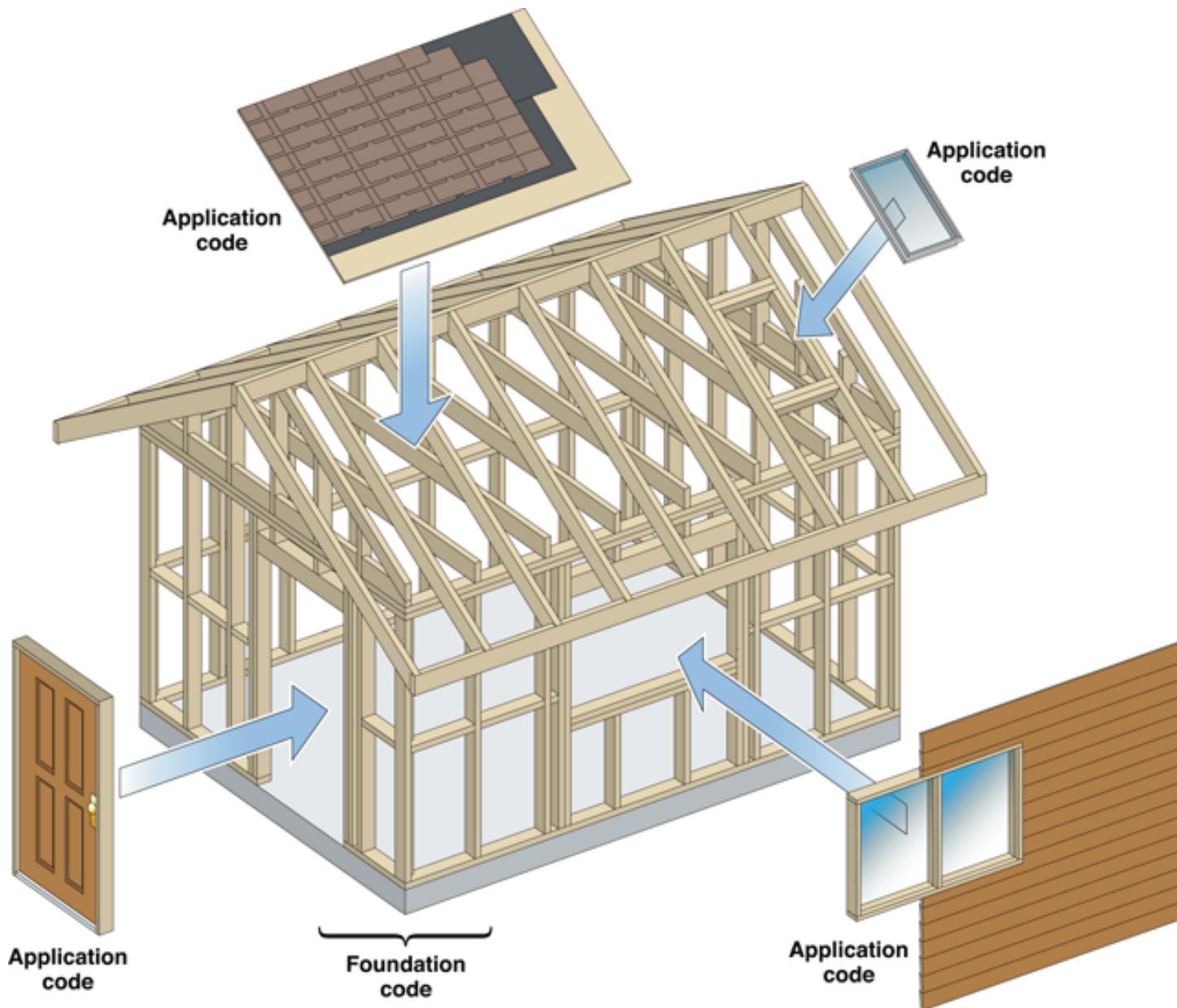
# The Who

- Processor IP company
  - CPU & GPU technology
- Global company, based in Cambridge, UK
  - Major offices in UK, US, China, France, India
- Dates back to 1990
  - Spun out from Acorn Computers
- ARM partners have shipped over 50 billion chips

The ↑  
what ↑

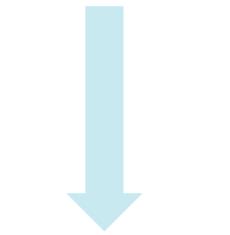
ARM

# The What



**ARM**

# Solid Foundations



# Firmware & Platform description

- ACPI
- UEFI
  - <http://sourceforge.net/apps/mediawiki/tianocore/index.php?title=EDK2>
- U-boot
- Trusted Firmware
  - <https://github.com/ARM-Software/arm-trusted-firmware>
- Device Tree

# Linux Kernel

- Enabling ARM IP support upstream
- Connecting our IP with other components
- Support our partners and the community
- Performance tuning & regression testing
- Maintainer for KVM on ARMv8
  - Joint maintainership for ARMv7

# Development Tools



**ARM**

# Development Tools

- Enabling support for new processors and architectures
- Ensuring correctness of the compiler
- Performance tuning and regression testing
- Maintenance of key areas
- Supporting partners and the community

# Building on the foundation

**HTML**



**ANDROID**

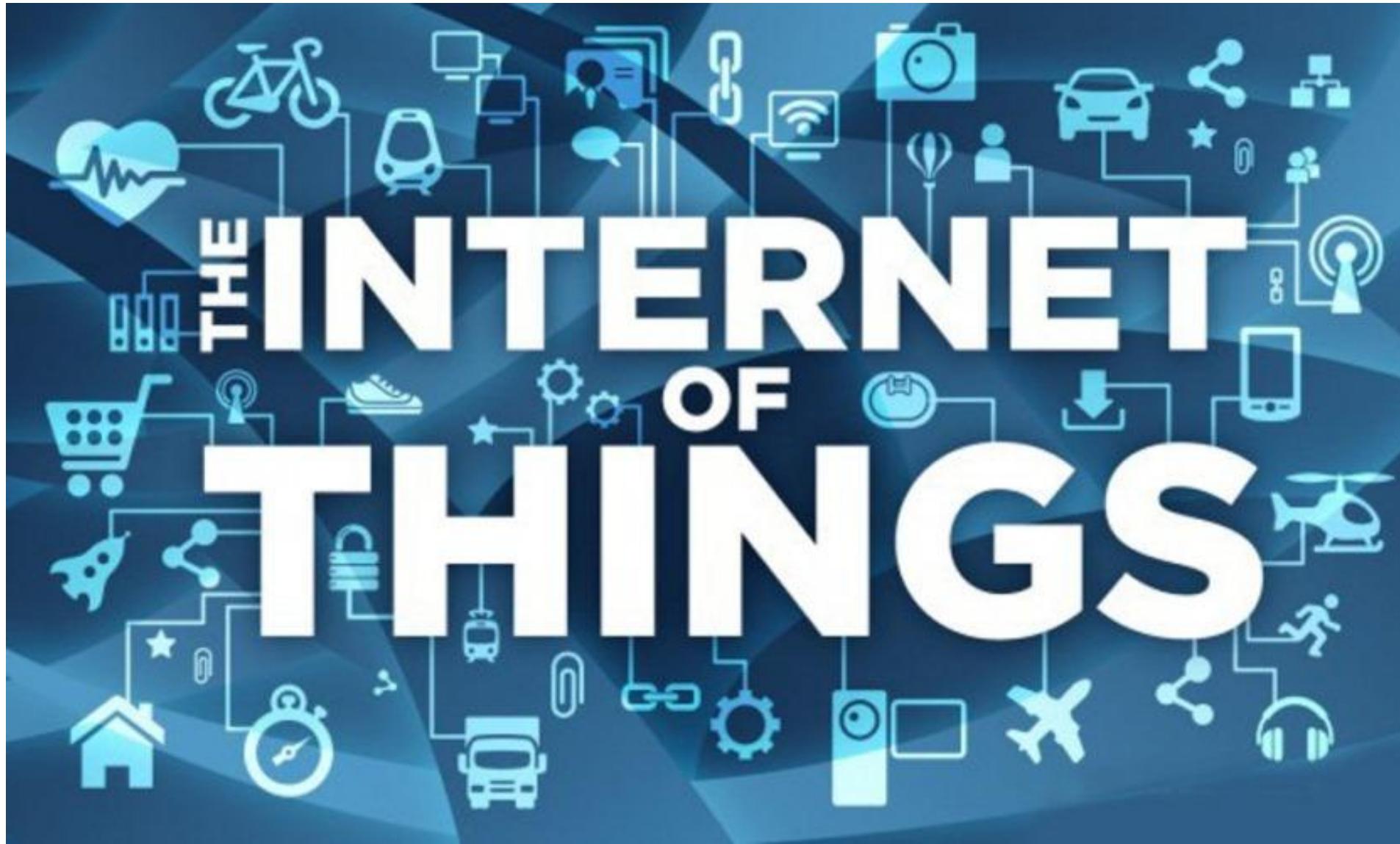
**ARM**

# Projects

- Ne10
  - <http://projectne10.github.io/Ne10/>
- Vixl
  - <https://github.com/armvixl/vixl>
- Trusted Firmware
  - <https://github.com/ARM-Software/arm-trusted-firmware>

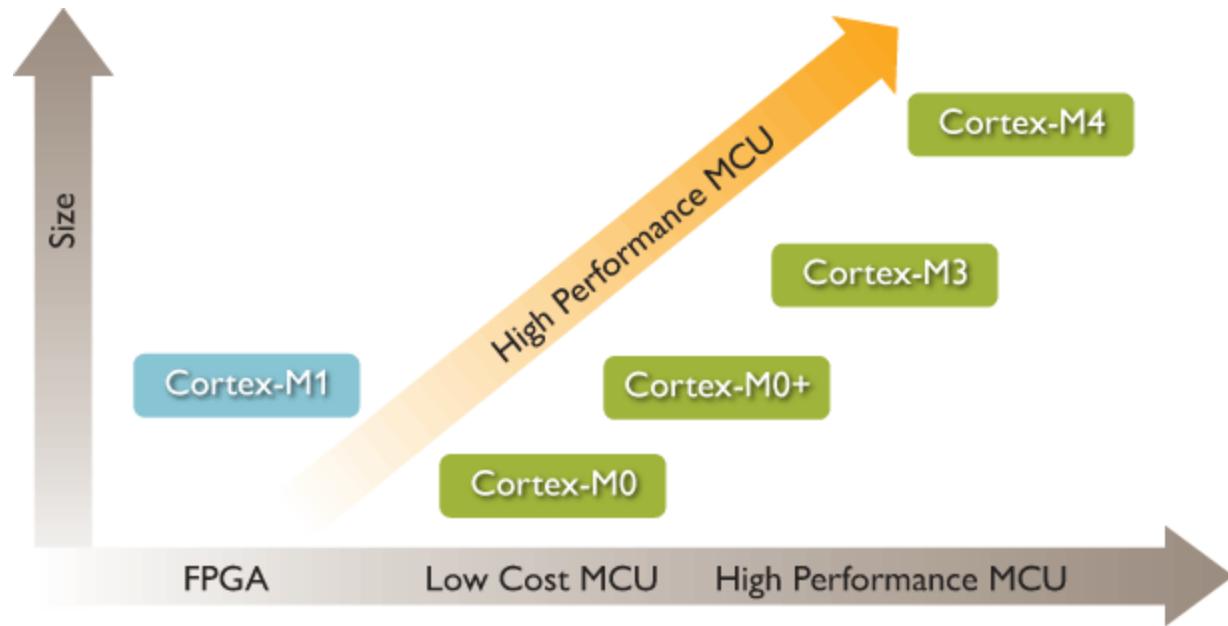


## Evolution of embedded



# Introducing mbed

- An open source platform for developing embedded systems based on ARM Cortex®-M microprocessor
- <http://mbed.org/>
- <https://github.com/mbedmicro/mbed>



# Microcontroller and Toolchain Portability

## Hardware Abstraction Layer



mbed LPC1768



mbed LPC11U24



Freescale KL25Z



NXP LPC800-MAX

EA LPC4088  
QuickStart Board

DipCortex M0



DipCortex M3



BlueBoard-LPC11U24



WiFi DipCortex



Seeeduino-Arch



LPC1114FN28



u-blox-C027



FRDM-KL46Z



Seeeduino-Arch-Pro

## C Libraries and project exports



GCC

**mbed**  
Online Compiler**CODESOURCERY**  
now part of Mentor® Embedded

# Components Libraries

- Write a component library once and get supported on multiple mbed platforms.
- Implement the mbed HAL once and immediately support thousands of components.



Actuators



Communication



Display



sensinode

Internet of Things



Online Services



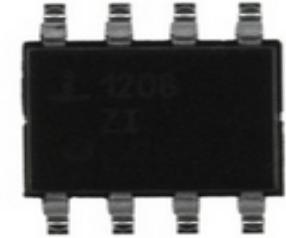
Robotics



Sensors



Storage



Other

# Legal & Licensing



# Legal & Licensing

- Projects created by ARM
  - Prefer permissive licenses to encourage wide-use and enable any combination with other software
  - Trusted Firmware, NE10, Vixl are under BSD-3-Clause; mbed is under Apache 2.0
- External projects
  - OSI-approved / well-known licences
- Collaborate with internal groups regarding open source license usage
- Legal department that is knowledgeable / comfortable with open source license issues
  - Involved in Linux Foundation legal initiatives

# Membership



Membership



ARM

# Linaro Overview



*Linaro is a not for profit engineering company that delivers core Linux technology for the benefit of its members*

- **Key goals:**
  - Provide a safe, collaborative environment where competitors can jointly develop common open source software
  - Use shared investment to provide high ROI to members
  - Reduce fragmentation and resulting costs
  - Work closely with ARM to deliver Linux software and tools for new ARM technology – big.LITTLE, ARMv8, infrastructure and networking platforms
  - Make ARM a leading architecture in open source
- More information available from <http://www.linaro.org>

# Linaro Members



CORE

**ARM**

**HISILICON**

CLUB

**BROADCOM**

**FUJITSU**

**SAMSUNG**

**LG Electronics**

**QUALCOMM**

**ST**  
life.augmented

**Texas  
INSTRUMENTS**

GROUP

**Allwinner  
Technology**

**AMD**

**apm  
applied  
micro**

**CAVIUM**

**CANONICAL**

**CISCO**

**CITRIX**

**COMCAST**

**ENEA**

**facebook**

**freescale  
semiconductor**

**hp**

**LSI**

**MARVELL**

**montavista**

**nsn**

**redhat.**

COMMUNITY

**IBM**

**ARM**

# Be part of the future

- Over 220 openings
  - Full list of vacancies available <http://www.arm.com/careers/>
- Internships available
- Graduate Program
  - <http://www.arm.com/careers/how-to-join-arm/graduate.php>

