

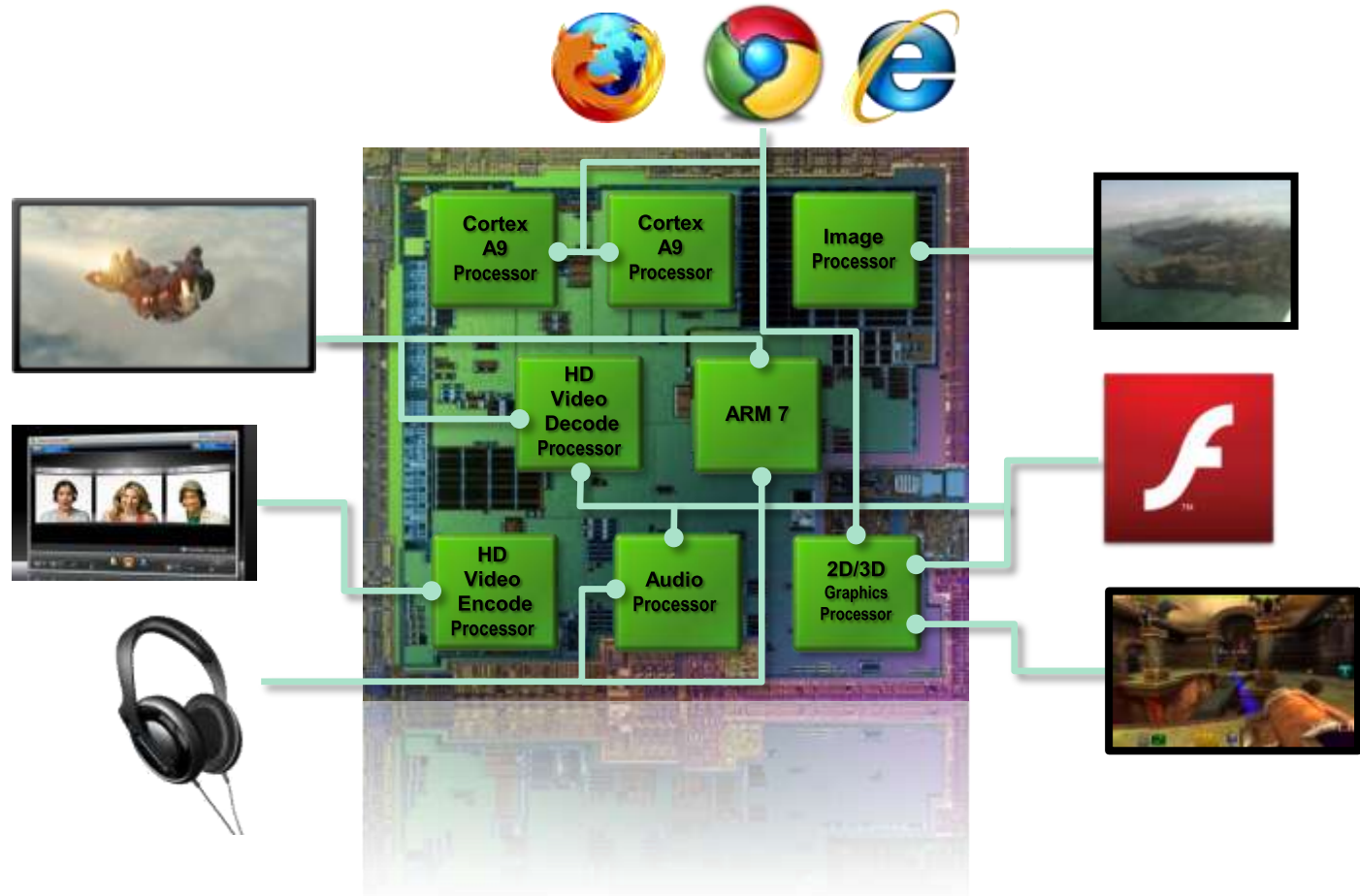


# **Khronos Mobile APIs Overview**

# Modern Mobile Silicon Functionality

- **Rich Experiential Processing**

- Parallel Computing
- GPU Computing
- 3D Graphics
- 2D Graphics
- Camera control
- Image processing
- Video encode
- Video decode
- Audio encode
- Audio decode



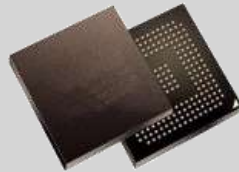
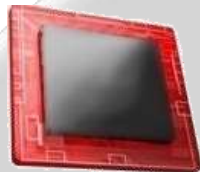
# The Critical Role of APIs



**APIs enable software developers to turn silicon functionality into rich end user experiences**

**KHRONOS**  
GROUP

**Khronos APIs are low-level – just above raw silicon - to create the “foundation” functionality needed on every platform**



# The Khronos Mobile API Family



**Complete set of APIs for rich, portable mobile application development**



# OpenGL ES Update

**Tom Olson**  
**Director, Graphics Research, ARM MPD**  
**Chair, OpenGL ES Working Group**

# OpenGL ES – 3D for Mobile

- **OpenGL for mobile devices**

- Gets rid of redundant / legacy features
- Extensions to make it mobile-friendly
- All the functionality of the desktop API



- **Versions**

- ES 1.0 / 1.1: fixed function
- ES 2.0: shader-based via GLSL ES

- **A huge success!**

- The dominant native 3D API for mobile devices
  - Products from every major cell phone manufacturer
- Moving rapidly into other embedded markets
- Hundreds and hundreds of millions shipped...





# What's New?

## OpenGL ES 2.0 is everywhere!

- **On the desktop**
  - ARB\_ES2\_compatibility
  - ES 2.0 context creation in desktop drivers
- **In the browser**
  - WebGL
- **...and, of course, on mobile devices**
- **Awesome content is appearing**

<http://www.epicgames.com/infinityblade/>



# What's Happening?

- **KTX File Format**

- Released at SIGGRAPH 2010
- Supports ETC1 and all GL native formats
- Now an official MIME type
- Documentation and tools at <http://www.khronos.org/opengles/sdk/tools/KTX/>

- **Convergence TSG**

- Working closely with the ARB to keep specs and roadmaps aligned

- **Next Generation OpenGL ES**

- In active development
- Will release when the market is ready