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# Digi<sup>®</sup> Application Development Kit for Android<sup>™</sup>

Integrated Android Application Development for Embedded Systems

## Overview

Android is an ideal software platform to create professional and feature-complete products with significantly reduced software development effort and improved overall time-to-market.

The Digi Application Development Kit for Android builds on the strong Android software foundation and its rich eco-system by providing a complete and easy-to-use Android application development solution that is designed to meet the specific needs of embedded developers.

## About the App Kit

Ready to use right out of the box, the kit includes the Android development tools, Android platform, Digi software and API extensions, the Eclipse-based Digi ESP<sup>™</sup> IDE, development board with ConnectCore<sup>®</sup> for i.MX module, 7" WVGA LCD panel with touch screen, and documentation.

The Digi software and API extensions also provide abstracted access to embedded peripherals and interfaces that are typically not available as part of the standard Android framework, including interfaces such as I<sup>2</sup>C and SPI. In addition, the Digi Application Development Kit for Android also implements fully transparent support for Ethernet and Wi-Fi network connectivity as well as seamless Digi Device Cloud support for Android applications.

The software support for the hardware capabilities of Digi's ConnectCore for i.MX module family combined with the Digi extensions for Android enable customers to design Android based products without the typically complex and often difficult low-level system development effort.

Whether you want to evaluate Android as a software platform or have already decided to build an Android based product solution, the Digi Application Development Kit for Android provides a unique and true turnkey solution enabling you to immediately start your embedded Android software development.

As part of the solution, Digi offers complete expert hardware and software technical support, effectively eliminating the typically time-consuming and inefficient interaction with multiple vendors. Working with a single source reduces your design risk and keeps your projects on track.

Digi and its Embedded Development Partners also provide professional hardware and software services for any of your project specific custom design needs.



## Features/Benefits

Ready-to-use embedded Android application development solution

Fully integrated and optimized support for Digi embedded hardware platforms

Digi is the single point of contact for hardware and software support

Optional software and hardware design services available

- Complete set of integrated Android tools, platform software components and hardware
- Highly accelerated and efficient application development can begin immediately
- Customer focus on core product competency
- No low-level system development effort unless custom hardware component support required
- Eliminates time-consuming and inefficient interaction with multiple vendors
- Professional custom software and hardware design services offered through Digi and Embedded Development Partners for reduced design risk and improved time-to-market



## General

- Android Platform
  - Gingerbread 2.3.4
- Android Development Tools
  - Version 14.0
- Digi ESP Eclipse Environment
  - Version 3.5.1
- Supported Development Platforms
  - Microsoft Windows XP/Vista/7
  - Linux
- Standard Emulator support
- Kernel and rootfs customization option
  - Available on Linux hosts

## Digi ESP™

- Based on Eclipse 3.5.1 and ADT 14.0
- Digi sample code and API extensions
- CVS source code management support
- Visual source code debugging via Ethernet
- Online help and cheat sheets
- Digi Package Manager for online updates and software/documentation distribution

## Digi Cloud Connector

- Fully integrated and seamless Digi Device Cloud support for Android applications.

## File Systems

- NAND Flash (On-Module)
  - UBIFS
  - High-performance large volume journaling flash file system with compression
- External SD Card
  - Ext3/Ext4
  - High-performance large volume journaling flash file systems with low fragmentation

## Digi Sample Code

- GPIO
- I<sup>2</sup>C
- SPI
- Serial Port
- OpenGL
- Audio Player
- Video Player
- Camera
- Device Cloud

## Supported Capabilities

- Ethernet (single)
- 802.11a/b/g/n Wi-Fi
- VPU/GPU (2D/3D)
  - With hardware video codec integration
- IPU
  - Single screen support
- Camera
  - Single camera support
- Monitor
  - VGA/HDMI
  - HDMI: Up to 1920x1080 on CC for i.MX53
  - HDMI: Up to 1366x768 on CC for i.MX51
- TFT Panels (Parallel/LVDS)
  - Sharp® LQ070Y3DG3B, LQ121K1LG52
  - Hannstar HSD101PFW2
  - Fusion™ 10 Touch Display
  - Customer-specific displays
- Touch screen
  - On-module controller
- USB Host
  - Keyboard, mouse
- USB OTG
- SD/Micro SD
- UART
- SPI
- I<sup>2</sup>C
- Audio
  - Playback and Recording
- User Buttons and LEDs
- Accelerometer
  - Freescale MMA7455L
- Power Management
  - Suspend/Resume/Power Off
- Battery power support
- Serial console (system logging)
- Custom splash screens
- Automatic user app launch

## Boot Loader

- U-Boot
  - Dual-boot capabilities
  - Boot via on-module flash, SD, USB, Ethernet
  - Robust NVRAM system configuration storage with redundant image option
  - Fusebox (eFuse) configuration
  - Flash partitioning command option
  - Digi command extensions
  - Fully integrated in build environment
  - Graphical configuration tool

## User Documentation

- Getting Started Guide
  - How to build your first Android application
- Digi API Extensions
  - Documentation of Digi API Extensions
- Digi ESP Users Guide
- Hardware reference manuals
  - Technical reference information
- U-Boot reference manual

## Target Platforms

- ConnectCore® for i.MX51
- ConnectCore® for i.MX53

