

# Digi Embedded Linux® 5

Integrated Linux Platform for Embedded Systems

## Overview

Take advantage of the flexibility and power of the open Linux environment with its extensive software library, complete source code availability and strong community support. Digi Embedded Linux is the ideal choice for embedded Linux development on Digi hardware platforms. It provides a fully tested and highly integrated turnkey development solution out-of-the-box.

## About Digi Embedded Linux

The combination of an easy-to-use, fully tested Linux package with Digi ESP™, an Eclipse™-based graphical development environment, and seamless integration with Digi hardware platforms significantly accelerates the often complex and time-consuming development process of Linux-based products.

Built on a stable Linux 2.6.x kernel, Digi Embedded Linux offers a complete and royalty-free end-to-end solution with all the components required to build secure network-enabled embedded products. From build environment, to applications and services, to BSPs, drivers and bootloader infrastructure, the Digi Embedded Linux package provides a true turnkey solution for professional embedded product development.

Digi ESP is built on the open Eclipse framework and is designed for both the expert and novice Linux developer. It provides the next level of embedded software productivity by enabling immediate and successful Linux-based product development with dramatically improved time-to-market.

Whether you are looking to evaluate the platform through Digi's universal and bootable Live DVD environment, planning to use an already existing Linux environment for development, or setting up a fresh Linux host development system, Digi Embedded Linux provides all those installation options right out-of-the-box.

Digi also offers complete hardware and software technical support, effectively eliminating time-consuming and inefficient interactions with multiple vendors. Working with a single source reduces your design risk and keeps your project on track.



## Features/Benefits

Royalty-free embedded Linux development environment	<ul style="list-style-type: none"> <li>• Complete set of integrated Linux services and software components</li> <li>• Dramatically shortened time-to-market and significantly reduced design risk</li> </ul>
Fully integrated and optimized BSPs for Digi hardware platforms	<ul style="list-style-type: none"> <li>• Requires no additional porting effort for low-level Linux drivers</li> <li>• Source code included</li> </ul>
Built on stable releases of recent Linux kernels	<ul style="list-style-type: none"> <li>• Fully tested and integrated environment with current feature set</li> </ul>
State-of-the-art Digi ESP IDE based on Eclipse framework	<ul style="list-style-type: none"> <li>• Highly accelerated and efficient application development can begin immediately</li> </ul>
Digi is the single point of contact for hardware and software support	<ul style="list-style-type: none"> <li>• Eliminates time-consuming and inefficient interactions with multiple vendors</li> </ul>
Included in all Digi JumpStart Kits® for Digi Embedded Linux	<ul style="list-style-type: none"> <li>• Optimal "out-of-box" development experience</li> </ul>



## General

- Linux kernel
  - Version 2.6.35
- Single DVD media distribution
- Online software updates via Digi Package Manager Installation Options
- Live DVD
  - Complete, bootable Kubuntu 10.04/KDE 4.4 development environment for rapid evaluation
- Full install
  - Kubuntu-derived Linux host installation plus Digi Embedded Linux development components
- Digi Embedded Linux
  - Digi Embedded Linux development components only, for customers with existing Linux host

## Digi ESP

- Based on Eclipse 3.6.1 and CDT 7.0.1
- C/C++ application and library wizards
- Qt UI development perspective
- CVS source code management support
- Visual source code debugging via Ethernet
- Target monitor extensions
  - File system view, flash update, register inspection, target reset, remote console
- Online help and cheat sheets
- Integrated viewer for man pages

See Digi Device Cloud for more information.

## Digi Device Cloud

- Digi Embedded Linux provides full support for Device Cloud.

## Toolchain

- binutils
  - Version 2.20
- BusyBox
  - Version 1.18
- eglibc
  - Version 2.12
- gcc
  - Version 4.4.6
- gdb, with gdbserver
  - Version 6.8
- uClibc
  - Version 0.9.30

## File Systems

- CRAMFS
  - Space-efficient and simple read-only file system with file compression
- JFFS2
  - Optimized Journaling Flash File System with compression options
- NFS
  - Network file system
- SQUASHFS
  - Low-overhead read-only file system (kernel/root) with compression
- UBIFS
  - High-performance large volume journaling flash file system w/compression

## Boot Loader

- U-Boot
  - Boot via on-module flash, SD, USB, Ethernet
  - Custom boot splash screen
  - 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

## Services and Components

### Network Services

- TCP/UDP, ICMP, ARP, RARP, BOOTP, DNS, DHCP, TFTP, Telnet
- bridge-utils 1.4
- cherokee 0.99.9
- iproute2 2.6.38
- net-snmp 5.4.2
- openntpd 3.9p1
- ppp 2.4.4

### Secure Communication

- dropbear 0.52 (SSH)
- openssl 0.9.8i
- stunnel 4.35
- vsftpd 2.0.7

### Wireless LAN

- Wireless Tools
  - Version 29
- WPA Supplicant
  - Version 0.6.10

### Graphics/UI

- Qt 4.7.2 (LGPL/commercial)

### Multimedia

- alsa-lib 1.0.19
- alsa-utils 1.0.19
- amd-gpu-bin-mx51 11.05.01
- fsl-mm-codeclic 2.0.1
- gstreamer 0.10.28
- madplay 0.15.2b
- libogg 1.2.0
- libvorbis 1.3.1
- libmad 0.15.1b
- libtheora 1.1.1
- liboil 0.3.16
- libz160-bin 11.05.01
- mplayer 1.0rc2

### Miscellaneous

- Ethtool v6
- mii-tool 1.9.1.1
- mtd utils v1.3.1
- PCMCIA utils v015
- Python 2.7.1
- SQLite 3.6.6
- strace 4.5.18
- tslib for touch screen v1.0
- ubootenv (Read/write NVRAM settings tool)
- update\_flash (Flash partition update tool)
- usbutils v002

## Peripherals

- Ethernet (single/dual)
- 802.11a/b/g/n WLAN
- VPU/GPU (2D/3D)
  - Hardware video codec integration
- IPU
  - Single/dual-screen support
- Monitor/panel support
  - CRT**
    - ADI@ ADV7125 (VGA), ADI AD9389B (HDMI)
  - TFT**
    - Sharp@ LQ050W1LAXX, LQ070Y3DG3B, LQ072K1LAXX, LQ104V1DG62, LQ106K1LA05, LQ121K1LG52
    - EDT ET028002DHU
    - Customer-specific displays
- Power Management IC (PMIC)
  - Freescale MC13892, Dialog DA9053
- Touch screen
  - TI™ ADS7843, Internal
- UART, SPI, I<sup>2</sup>C, 1-Wire, CAN
- SD/SDIO/MMC, CF, SATA, PATA
- I2S, AC'97, SSI
- USB OTG/Host/Device
- PWM
- ADC
- Accelerometer
  - Freescale MA7455L
- Timers, Watchdog, RTC
- NAND/NOR
  - Via MTD, UBI
- FI<sup>M</sup>
  - UART, SD/SDIO, I2S, CAN

## User Documentation

- Users guide
  - Digi ESP and Command Line
- Building your first application
  - How to build your first Linux application
- Cheat sheets
  - Guided help for common tasks
- Hardware reference manuals
  - Technical reference information
- U-Boot reference manual

## Supported Hardware Platforms

- Digi Connect ME® / Wi-ME 9210
- ConnectCore® 9P / Wi-9P 9215
- ConnectCore® 9C / Wi-9C
- ConnectCore® 9P 9360
- ConnectCore® 9M / Wi-9M 2443
- ConnectCore® for i.MX51
- ConnectCore® for i.MX53 (coming soon)

Note: Availability of listed software components and peripheral interface support depending on capabilities of actual target hardware (module).

