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 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 kernel, Digi Embedded Linux offers a complete and royalty-free end-to-end solution with all 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 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.
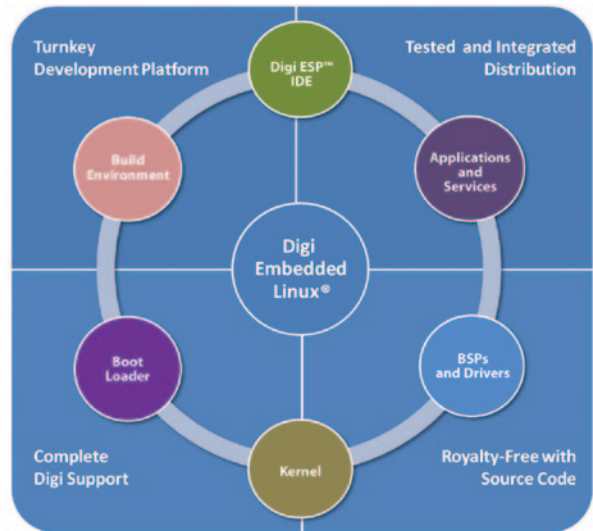
Features/Benefits

Complete and royalty-free out-of-the-box embedded Linux environment with full source code	• Dramatically shortened time-to-market combined with design flexibility and significantly reduced design risk
Fully integrated and optimized BSPs for Digi hardware platforms	• Requires no additional porting effort for low-level Linux drivers, including secure WPA2/802.11i WLAN drivers on wireless modules.
Built on recent stable version of Linux kernel	• Fully tested and integrated environment provides latest features and available patches
State-of-the-art graphical development environment based on open Eclipse framework	• Highly accelerated and efficient application development can begin immediately
Digi is the single source for complete hardware and software support	• Eliminates time-consuming and inefficient interaction with multiple vendors
Included in all Digi JumpStart Kits® for Digi Embedded Linux	• Optimal "out-of-the-box" product development experience

www.digiembedded.com

General

- Linux kernel
  - Version 2.6.28
- Single DVD media distribution
- Online software updates via Digi Package Manager Installation Options
- Live DVD
  - Complete, bootable Kubuntu 8.10/KDE 4.2 development environment for rapid evaluation
- Full install
  - Kubuntu-derived Linux host installation plus Digi Embedded Linux development components
- Digi Embedded Linux
  - Installation of Digi Embedded Linux development components only, for customers with an existing Linux development host installation

Digi ESP

- Based on Eclipse 3.4.1 and CDT 5.0.1
- C/C++ application and library wizards
  - Managed project builds with automatic makefile generation and maintenance
- 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 ESP feature spec for more information.

iDigi® Platform

- Digi Embedded Linux provdies full support for the cloud-based iDigi M2M network operating platform. Visit www.idigi.com for more information.

Toolchain

- gcc
  - Version 4.3.2
- gdb, with gdbserver
  - Version 6.7.1
- binutils
  - Version 2.19
- uClibc
  - Version 0.9.30
- BusyBox
  - Version 1.15.2

File Systems

- CRAMFS
  - Space-efficient and simple read-only file system with file compression
- JFFS2
  - Optimized Journalling Flash File System with compression options
- NFS
  - Network file system
- SQUASHFS
  - Low-overhead read-only file system (kernel/root) with compression

Applications and Services

Network Services
- TCP/UDP, ICMP, ARP, RARP, BOOTP, DNS, TFTP, Telnet
- DHCP Server/Client (BusyBox applet)
- PPP (pppd) and Chat v2.4.4
- Cherokee web server v0.99.9
- Bridge-utils v1.4
- Net-SNMP v5.4.2
- OpenNTPD v3.9p1

Secure Communication
- OpenSSL library v0.9.8i
- Very Secure FTP Server (vsftpd) v2.0.7
- Dropbear SSH Server/Client v0.52
- Stunnel v4.26

Wireless LAN
- Wireless Tools
  - Version 29
- WPA Supplicant
  - Version 0.6.8

GUI
- Qtopia® Core Open Source Edition
  - Version 4.4.3
  - LGPL/commercial licenses available

USB
- usbutils v0.73

Miscellaneous
- Python v2.5.1
- SQLite v3.6.6
- strace v4.5.18
- mii-tool v1.9.1.1
- mtd utils v1.2.0, tools for NAND/NOR memory
- Flash partition update tool (update_flash)
- Read/write NVRAM settings tool (ubootenv)
- Alsa library v1.0.19
- Alsa utils v1.0.19
- Ethtool v6
- PCMCIA utils v015
- tslib for touch screen v1.0

Drivers

- UART, SPI (Master), I²C, I²S, ADC
- SD/SDIO/MMC, CF
- PWM, Timers, Watchdog
- GPIO (processor/expander/EEPROM)
- RTC
- USB host/device
- Ethernet/WLAN
- NAND/NOR memory
  - MTD driver for memory on module
- FIM interfaces (NS9210/NS9215 platforms)
  - UART, SD/SDIO, CAN
- Display via LCD controller
  - CRT: ADI ADV7125 (VGA)
  - TFT: Sharp® LQ57Q3DC2/64V3DG01 (QVGA/VGA), other
- Display via memory bus
  - TFT: EDT ET028002DHU (QVGA)
- Touch screen
  - TI™ ADS7843 via SPI

Boot Loader

- U-Boot v1.1.6
  - Boot support for flash, USB memory stick, and Ethernet
  - Robust NVRAM system configuration storage with redundant image
  - Flash partitioning command option
  - Digi command extensions
  - Fully integrated in build environment as separate project module
  - Graphical configuration tool for easy configuration of options
- Custom splash screen support

Sample Code

- Multihreading (pthreads)
- Alsa audio, OSS audio
- CAN, GPIO
- Qtopia GUI
- RTC
- Watchdog
- Other

User Documentation

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

Supported Hardware Platforms

- Digi Connect ME® 9210
- ConnectCore™ 9P / Wi-9P 9215
- ConnectCore™ 9C / Wi-9C
- ConnectCore™ 9P 9360
- ConnectCore™ 9M / Wi-9M 2443