

LxNETES (Linux[®] for NETworked Embedded Systems) Feature Spec

Linux embedded operating system and cross-development platform

Overview

LxNETES is a complete and royalty-free embedded Linux development platform optimized for Digi's network-enabled processors and embedded modules.

About LxNETES

Developed and maintained by Digi, LxNETES allows developers to take immediate advantage of the open Linux environment with its unique community support and the readily available library of software components.

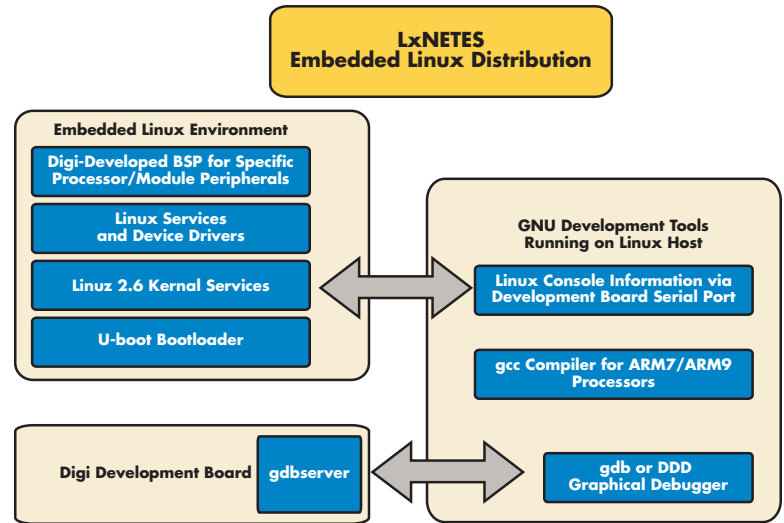
Unlike Linux support that is based on binary distributions, LxNETES provides the flexibility of a truly open Linux development platform with full source code based on the 2.4 or 2.6 kernel, including Board Support Packages (BSPs) and a customizable bootloader (U-boot).

Instead of requiring developers to build their own platform-specific kernel and toolchain environment, the integrated LxNETES platform provides a complete off-the-shelf solution tailored to the specific needs of embedded application development.

Overall development risk and product development cycle are also reduced. Instead of investing significant development effort in basic platform setup and support activities, developers can focus on the application-specific design aspects of the development process. LxNETES also eliminates the traditional hardware platform adaptation and porting related effort that is typically associated with embedded Linux development.

A complete cross-development environment and platform-specific device driver support (Ethernet, PCI, serial, SPI, I²C, USB, LCD, touchscreen, audio, etc.) plus a wide range of network services are supported right out of the box.

LxNETES is fully supported and regularly updated by Digi. The highly optimized integration with Digi's family of network-enabled embedded hardware platforms guarantees the highest level of compatibility between Digi's hardware and Linux and also offers a single source of support for all hardware and software design issues.



Features/Benefits

Complete out-of-the-box embedded Linux development platform

Integrated BSPs for Digi's embedded hardware platforms

Optimized support for Digi's processors and embedded modules

Embedded operating system based on a recent version of the Linux 2.6 kernel

Single source for hardware and software support

Complete development tool chain included

- Immediate start of development process and significantly reduced design risk
- Eliminates extensive adaptation and porting effort for low-level device drivers
- Efficient and reliable operation on Digi's embedded hardware platform
- Development kit provides all the latest embedded Linux features, patches and bug fixes
- Eliminates support delays and passing of problems between hardware and software vendors.
- No need to build own development environment or evaluate and purchase additional development tools



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DEVICE NETWORKING
easy™

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Features

LxNETES 3.3 (ARM9) Linux for ConnectCore™ 9C/9P/XP and NetSilicon® NS9360/NS9750

- Linux kernel v2.6.x
- NAND Flash driver support
- uClibc v0.9.27
- Busybox v1.0
- Dynamic module loading
- Filesystem support:
 - CRAMFS
 - JFFS2
 - NFS
- TCP/IP stack
- SSL 3.0 / TLS 1.0
- PPP support
- Boa embedded webserver
- Support for STL (Standard Template Library) and iostreams
- USB host and device
- Device driver for TFT LCD included in development kit
- Sample code and documentation
- Integrated Bootloader support
 - U-boot open source bootloader allows system to boot from:
 - Onboard Flash memory
 - Over a network connection
 - From USB or serial port
 - Enables field updates of system and application software

LxNETES 2.4.20 (ARM7) Linux for Digi Connect ME®, ConnectCore 7U, NetSilicon NS7520

- uCLinux kernel v2.4.x
- uClibc v0.9.19
- Busybox v1.0
- Dynamic module loading
- Filesystem support:
 - CRAMFS
 - JFFS2
 - NFS
- TCP/IP stack
- PPP support
- Boa embedded webserver
- Support for STL (Standard Template Library) and iostreams
- Sample code and documentation



Digi provides a Linux Development Platform for its complete line of embedded modules, from the Digi Connect ME to the fastest ConnectCore module.

System requirements

LxNETES 3.3 (ARM9/XScale) Linux for ConnectCore 9C/9P/XP and NetSilicon NS9360/NS9750

- Host: 500 MB free disk space on Linux host
- Target: Memory footprint (typical):
 - Kernel: 1,204 KB
 - rootfs: 11, 152 KB(including nano-X, qt-embedded)
Services not required can be removed (Dependent on Linux services and device drivers installed)

LxNETES 2.4 (ARM7) Linux for Digi Connect ME, ConnectCore 7U, NetSilicon NS7520

- Host
 - /usr/local: 350 MB
 - /targets/LxNETES: 60 MB
 - /targets/LxNETES/ewp: 560 MB
- Target
 - Memory footprint (typical): 1601 KB (Included kernel and rootfs)(Dependent on Linux services and device drivers installed)

Network services included

- TCP
- UDP
- ICMP
- ARP
- RARP
- BOOTP
- DHCP
- TCP Sockets API
- UDP Sockets API
- HTTP v 1.1
- SNMP v3
- Telnet
- DNS client
- Tftp
- SSL
- PPP
- FTP Server
- FTP Client

Technical support

Digi offers several technical support options, including:

- Free startup support
- Software subscription to receive updates
- Support via phone and email

Development kit contents

- GNU development tool chain
 - gcc 3.4.4
 - gdb 6.3
- Debugging via gdbserver (Ethernet and serial port)
- Flash programming utilities
- Development hardware
- LxNETES CD
- Power Supply
- JTAG Booster for Flash programming, I²C access, and CPU signal tests
- Optional TFT LCD panel w/ touchscreen
- Optional support
- LCDs supported
 - TFT 320x240
 - TFT 640x480
 - TFT 800x600
 - STN 320x240
 - Custom LCD device driver development available
- Touchscreen support
- Graphics software supported
 - nanoX
 - Trolltech Qtopia

Device drivers supported

- Ethernet
- Serial
- PCI Bus
- USB Host
- USB Device
- SPI
- I²C
- NAND Flash
- EEPROM
- Compact Flash Memory Cards

