

ELinOS

INDUSTRIAL GRADE LINUX

Linux is an attractive option for many types of embedded applications. Its flexibility and broad range of functionality, APIs and drivers are compelling reasons to consider Linux. However, many traps and difficulties lurk for embedded Linux novices, non-experts, or developers who have no time to sort out the proliferation of new components continuously being added to the sprawling Linux ecosystem. ELinOS is the embedded Linux environment that solves these problems, offering customers the best selection of technology to meet their needs, along with the comfort of world-class support.

ELinOS at a glance

- Industrial Grade
- Integrated eclipse based development environment
- Kernel 2.6.27 (*previous versions also supported*)
- Target configuration editor
- Runs out of the box
- One year support included
- Validated and tested for PPC (60x, 4xx, E500), x86, ARM, SH-4, MIPS
- BSPs for major embedded boards and chip vendors included

Managing Embedded Linux Versatility

Creating an Embedded Linux based system is like a puzzle. Putting the right pieces together will create the final image. This requires a deep knowledge of Linux's versatility and takes time for the selection of components, development of Board Support Packages and drivers, and testing of the whole system – not only for newcomers. With ELinOS Industrial Grade Linux, SYSGO offers an 'out-of-the-box' experience which allows to concentrate on the development of competitive applications itself. ELinOS incorporates the appropriate tools to help you build the system and boost your project success, including a graphical configuration front-end with a built-in integrity validation.

Application Development

Developing embedded applications requires different support from the development environment than developing standard applications. Remote debugging, target memory utilization analysis and timing behavior are features that an embedded developer almost always needs, in addition to standard application development.

With CODEO, SYSGO offers a complete Eclipse-based development environment for the embedded application development.

Professional Services and Support

Providing an outstanding peer-to-peer support and a broad range of professional services was the foundation of the success of ELinOS in the past years. With ELinOS Industrial Grade Linux we extend this support consequently to serve your needs more precisely. SYSGO strengthens its online support and training capabilities to accommodate the ongoing globalization of project teams.

"Using SYSGO's ELinOS minimized our development risks and gave us the freedom to concentrate on our essential tasks."

Stefan Bauer, Rohde & Schwarz,
R&D Hardware Test Systems

Versatile Embedded Linux

Kernel

Provided Kernels include necessary security patches and are qualified on the supported hardware platforms.

- Kernel 2.6.27 · Kernel 2.6.22

Embedded Linux Configurator (ELK)

Graphical front end for an easy, fast, reproducible and validated Embedded Linux configuration.

Supported Hardware

Support for all CPU architectures on which Linux is available, tested and validated for.

- ARM · x86 · MIPS · XScale
- PowerPC · SH4

Supported Boards

Qualified BSPs are available for almost every board of our hardware partners, the major embedded board and chip vendors.

- AMCC · AMD · Atmel · Congatec
- Digital-Logic · Freescale · IBM · Intel
- Kontron · MEN · Emerson · Phytex
- Texas Instruments · TQ Components
- others

Open Source Real-Time Linux extensions

Kernel preemption/low-latency patch are included. Xenomai real-time extension for Linux Kernel is available for Kernel 2.6.

- Xenomai 2.4.x for x86, PPC, ARM

Project Templates

Demo projects for typical Embedded Linux usage domains are supplied to support a fast and easy project start.

- Network Device · Webserver
- Graphic UI · others

Boot Strategies

Several boot strategies can be selected using the ElinOS Industrial Grade Linux Configurator.

- Etherboot · PXE Boot
- Hard and flash disk · CD ROM

Supported File systems

Typical Linux, Windows and embedded file systems can be chosen and easily exchanged.

- Ext2, Ext3 · Journaling · Reiser · FAT
- NTFS · initramfs · others

Security Features

Secure the target system against external or internal threats using provided security mechanisms and tools.

- Integrated rules based firewall
- Restrict execution to digitally signed binaries only
- Secure remote shell access
- VPN

Industrial Automation

ElinOS Industrial Grade Linux explicitly supports the needs of industrial automation customers.

- CAN, CANOpen · VME · IPv6 · USB
- Wi-Fi · others (*EtherCAT upon request, ...*)

Precompiled Target Binaries

To accelerate the Embedded Linux configuration and building process, ElinOS Industrial Grade Linux includes more than 150 precompiled applications and libraries:

- BusyBox · X.Org-7.3 · Mesa-7.4 · QT-4.5
- QT-embedded-4.5 · GTK+-2.12.11
- OpenSSH · OpenVPN · Thttpd
- and many more

ElinOS supports Adobe® Flash® Lite™

Application Development

Embedded Application Development

Developing embedded applications needs special support from the development environment. Direct target connection for remote debugging, timing analysis and to gather runtime information is vital, thus supported by Eclipse-based SYSGO's CODEO which is included in ElinOS Industrial Grade Linux.

Application Debugging

CODEO includes a graphical debugger based on eclipse utilizing the GDB defined by the selected cross tool chain. Register contents, variable values and breakpoints can be displayed and edited.

Target Analysis

CODEO also includes a target analyzing system based on eclipse. The CODEO Trace Tool offers a customizable timing analyzer as well as a target system viewer to display process information, memory utilization, semaphore status and much more.

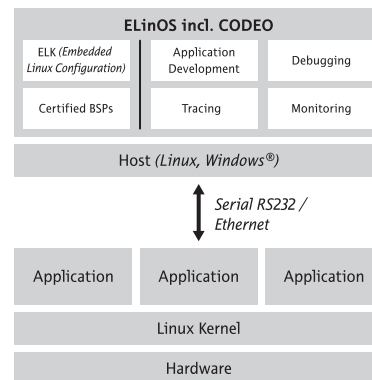


Figure 1: ElinOS – Industrial Grade Linux Overview

Service and Support

Peer-to-Peer Support

Support requests are always handled by the ElinOS product team professionals who are able to solve problems live, together with the customer.

Training

SYSGO offers Product training at SYSGO's premises or at customer's site.

Development Support

One year e-mail support for all SYSGO tools is included in ElinOS Industrial Grade Linux by default.

Lifecycle Updates

Customers can benefit from ongoing improvements, by accessing the SYSGO customer portal, where the latest updates of target binaries, new BSPs, and add-ons are available.

System Requirements

- **Linux** distribution based on kernel 2.6 and glibc 2.2.5 and later
- **Windows** XP SP2 or later with administrator access for installation
- 2GB free disk space
- 512 MB RAM
- Java runtime environment 1.5.0 and later
- Eclipse ganymede recommended