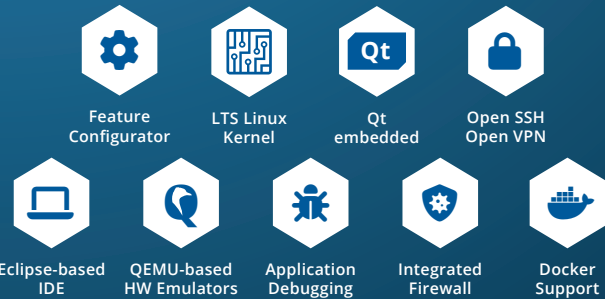SYSGO
EMBEDDING INNOVATIONS

ELinOS 7.2

Industrial Grade Embedded Linux

E ELinOS has been designed for developers to save time and effort by helping them to focus on their applications. Our industrial grade Linux with a user-friendly IDE goes along with the best selection of software packages to meet customer needs, and with the comfort of world-class technical support. ELinOS has a strong focus on Security and supports isolating applications by separating them in containers. ELinOS contains tools and kernel support to develop applications for embedded systems. To cope with the large number of embedded platforms and I/O facilities available today, ELinOS uses a recent kernel version with long-term support. The development languages supported are C and C++.

Feature Configurator	LTS Linux Kernel	Qt embedded	Open SSH Open VPN
Eclipse-based IDE	QEMU-based HW Emulators	Application Debugging	Integrated Firewall	Docker Support

ELINOS FEATURES

- Industrial Grade Linux
- Graphical Integrated Development Environment (CODEO)
- Multiple Linux kernel versions incl. 6.1 LTS with real-time enhancements
- Quick and easy setup with graphical wizards and tools
- Machine emulation (QEMU)
- Extensive file system support
- Application debugging
- Target analysis
- Runs on PikeOS for para-virt and HwVirt
- Validated and tested for ARM, x86, RISC-V and PowerPC
- 32- / 64-bit processor support
- BSPs for major embedded boards and chip vendors included
- Cost-effective licensing model
- 5-year standard support included

System Requirements
- Supports Ubuntu 22.04, Debian 11, Windows 10 and 11
- Java runtime environment 17

MANAGING EMBEDDED LINUX VERSATILITY

Creating an embedded Linux-based system is like solving a puzzle and putting the right pieces together. 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, SYSGO offers an 'out-of-the-box' experience which allows to focus on the development of competitive applications itself. ELinOS incorporates the appropriate tools, such as a feature configurator to help you build the system and boost your project success, including a graphical configuration front-end with a built-in integrity validation.

APPLICATION & CONFIGURATION ENVIRONMENT

In addition to standard tools, remote debugging, target system monitoring and timing behaviour analyses are essential for application development.

CODEO is a complete Eclipse-based development environment. By means of the feature configurator, the developer is enabled to define the system configuration on a high level. The generation of the root file system and the Linux kernel configuration follow changes of the feature configuration automatically, by just considering components that are actually required. This mechanism lessens memory footprint and results in a significantly reduced number of possible attack vectors compared to a standard Linux system.

C Learn more: www.sysgo.com/codeo

VERSATILE EMBEDDED LINUX

Kernel

ELinOS 7.2 includes Linux kernel 6.1 LTS with optimizations for embedded usage and real-time extensions. Other kernel versions are available for selected BSPs. The Linux kernel is automatically tailored based on the project's configuration and compiled within the CODEO IDE. The development toolchain is based on gcc-12.2 and binutils 2.40, glibc 2.36 is provided as C library. Vendor kernels from a Yocto BSP can be easily imported into an ELinOS system. It also provides a SPDX v2.3 compliant license identifier

Supported Hardware

Support for many CPU architectures, single- and multi-core platforms. ELinOS is tested and validated for:
• ARM v7hf • ARM v8 (64-bit) • x86 • x86-64 • PPC e500mc
• PPC e5500 (64-bit) • RISC-V

Supported Boards

Qualified BSPs are available for various boards of our HW partners, major embedded board and chip vendors.
• AMD • Intel • Raspberry Pi • NXP • Phytec • Renesas
• TQ Systems • Texas Instruments • Xilinx • Others

Project Templates and customizable Feature Sets

Pre-configured templates and building blocks for typical embedded Linux usage domains are supplied to support a fast and easy project start.
• Network device • Web server • QT embedded • GTK • X11
• Wayland / Weston • Minimal footprint Linux • Others

Simulation Targets

The CODEO IDE includes QEMU-based target HW emulators, allowing to run the project on a desktop computer.

Supported File Systems

Typical Linux, Windows and embedded file systems can be chosen and easily exchanged.
• Ext4/3/2 • UBIFS • btrfs • JFFS2 • SquashFS • FAT • NTFS
• RAM file systems • NFS • F2FS • Others

TRAININGS, CONSULTING & SUPPORT

We provide an outstanding peer-to-peer support and a broad range of professional services. This includes trainings and project-specific consulting, live problem solving with the customer, a one-year E-Mail-based support for all SYSGO tools and life cycle updates to benefit from ongoing improvements.
www.sysgo.com/service

Security Features

Secure the target system against external or internal threats using provided Security mechanisms and tools.
• Immutable OS • Integrated rule-based firewall • wolfSSL
• Secure remote shell access • VPN

Industrial Automation

ELinOS Industrial Grade Linux explicitly supports the needs of Industrial Automation customers.
• CAN • VME • IPv6 • USB 3.0 • WLAN
• Others (EtherCAT, ... upon request)

Pre-Compiled Target Binaries

To accelerate the embedded Linux configuration and building process, ELinOS includes more than 250 pre-compiled applications and libraries:
• BusyBox • QT • GTK+ • XOrg-Server • OpenSSH • OpenVPN
• Lighttpd • Apache • Network manager • Wayland • MariaDB
• Perl • And many more

ELINOS DEVELOPMENT & UPDATES

Visit our blog to find posts with high-quality information, workarounds, tutorials, user-value orientated insights on embedded Linux in general and ELinOS in particular.

www.sysgo.com/blog → ELinOS

APPLICATION DEVELOPMENT

SYSGO's CODEO IDE, included in ELinOS, offers direct target connection for remote debugging, timing analysis, and gathering runtime information through an Eclipse-based platform.

Application Debugging

CODEO includes a debugger-based on Eclipse utilizing GDB. Register contents, variable values and break points can be displayed and edited.

Target Analysis

CODEO also includes a target analysing system based on Eclipse. The CODEO trace tool offers extended tracing capabilities, including SMP and 64-bit support.

Learn more: www.sysgo.com/codeo

Founded in 1991, SYSGO became a trusted advisor for Embedded Operating Systems and is the European leader in hypervisor-based OS technology offering worldwide product life cycle support. We are well positioned to meet customer needs in all industries and offer tailor-made solutions with highest expectations in Safety & Security. More information at www.sysgo.com/elinos

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