SYSGO
EMBEDDING INNOVATIONS

ELinOS 7

Industrial Grade Linux

SYSGO's Linux distribution ELinOS has been designed to allow developers to save time and effort by helping them to focus on their application. 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 7 now includes Docker support in order to isolate applications running on the same system.

ELINOS AT A GLANCE

- Industrial Grade
- Eclipse-based IDE for embedded Systems (CODEO)
- Multiple Linux kernel versions incl. Kernel 4.19 LTS with real-time enhancements
- Quick and easy target system configuration
- Hardware Emulation (QEMU)
- Extensive file system support
- Application debugging
- Target analysis
- Runs out-of-the-box on PikeOS
- Validated and tested for PowerPC, x86, ARM
- Support for 32- and 64-bit processors
- BSPs for major embedded boards and chip vendors included
- Cost effective licensing model
- One-year support included

MANAGING EMBEDDED LINUX VERSATILITY

Creating an Embedded Linux based system is like solving 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 (also on top of PikeOS) which allows to concentrate on the development of competitive applications itself. ELinOS incorporates the appropriate tools, such as a feature assembler 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

Developing embedded applications requires different functionalities from the development environment to developing standard applications. Remote debugging, target system monitoring and timing behaviour analyses 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.

By means of the Feature Assembler, 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 system 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.

PROFESSIONAL SERVICES AND SUPPORT

Providing an outstanding peer-to-peer support and a broad range of professional services were 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.

VERSATILE EMBEDDED LINUX

Kernel
ELinOS 7.0 includes Kernel 4.19 with optimizations for embedded usage. 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-8.3, glibc 2.28 is provided as C library. Vendor kernels from a Yocto BSP can be easily imported into an ELinOS system.

Supported Hardware
Support for many CPU architectures, single- and multi-core platforms. ELinOS is tested and validated for:
• ARM 32- and 64-bit • Power PC • PowerPC 64
• x86 32- and 64-bit

Supported Boards
Qualified BSPs are available for a large range of boards from our hardware partners, major embedded board and chip vendors.
• AMD • Intel • MEN • NXP • Phytec • Renesas • TQ Components
• 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 • Webserver • QT embedded • GTK • X11
• Wayland / Weston • Minimal footprint Linux • Others

Simulation Targets
The CODEO IDE includes QEMU-based target hardware emulators. These allow 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 v4.1 • F2FS • Others

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

Industrial Automation
ELinOS Industrial Grade Linux explicitly supports the needs of Industrial Automation customers.
• CAN • VME • IPv6 • USB3.0 • WLAN
• Others (EtherCAT, ... upon request)

Precompiled Target Binaries
To accelerate the embedded Linux configuration and building process, ELinOS industrial grade Linux includes more than 250 precompiled applications and libraries:
• BusyBox • QT 5.11 • GTK+3.24 • XOrg-Server-1.19 • OpenSSH
• OpenVPN • Lighttpd • Apache 2.4 • Network manager 1.14.6
• Wayland 1.16 • MariaDB 10.3 • Perl 5.28 • And many more

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 provided by SYSGO's Eclipse-based CODEO, which is included in ELinOS.

Application Debugging
CODEO includes a debugger-based on Eclipse utilizing GDB. Register contents, variable values and breakpoints 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.

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-based 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 (Board Support Packages), and add-ons are available.

System requirements
• 64-bit Linux host distributions • Tested on Debian, Fedora, OpenSUSE, Ubuntu • Windows 10 (64-bit)
• 4 GB free disk space • 2GB RAM
• Java runtime environment 8

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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