



Xenomai Real-time

EMAC has been offering **Xenomai** Real-time operating system "RTOS" extensions as an option to our EMAC OE Embedded Linux distribution. Xenomai is offered as one of many optional off-the-shelf Linux modules available for our distribution. EMAC, can also provide custom Real Time Drivers and Application assistance if required. Additionally, EMAC provides a Xenomai SDK plug-in to our IDE for program development.

Xenomai is a Free Software project in which engineers from a wide background collaborate to build a versatile real-time framework for the Linux® platform. While Xenomai is a real-time development framework cooperating with the Linux kernel, in order to provide a pervasive, interface-agnostic, hard real-time support to user-space applications, seamlessly integrated into the GNU/Linux environment.

The main project goal is to help migrating industrial applications from proprietary real-time systems to Linux.

Xenomai is about making various real-time operating system APIs available to Linux-based platforms. When the target Linux kernel cannot meet the requirements with respect to response time constraints, Xenomai can also supplement it for delivering stringent real-time guarantees based on an original co-kernel technology.

was reached in March 2002.

In its early days, Xenomai used to be an add-on component to real-time Linux variants for emulating traditional RTOS, originally based on a dual kernel approach. Over the years, it has become a full-fledged real-time Linux framework on its own terms, also available on single/native kernel systems.

Adeos/I-pipe are companion projects to Xenomai, which implements a key component of a dual kernel configuration: the interrupt

virtualization mechanism delivering high priority events to the Xenomai co-kernel with short and predictable latencies. Xenomai was the

first real-time extension to be ported over the **I-pipe**, followed a year after by **RTAI**.

In the 2003-2005 period, the original core team members – namely Gilles Chanteperdrix and Philippe Gerum – contributed significantly to the RTAI project, before focusing back on Xenomai’s own goals, which led to the release of Xenomai 2.0 in October 2005.

Since then, Xenomai 2 has been actively maintained and ported to various CPU architectures, for a user base mainly involved in the industrial automation industry.

The **Xenomai 3** architecture introduces a paradigm shift, as users are no more tied to the dual kernel configuration enabled by the I-pipe, but

may run the real-time APIs and their applications transparently over a single kernel configuration as well.

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