Linux Kernel With Xenomai Support
Tested on Linux Mint 15 with 3.8.0-32
Bugs should be reported to goncalopardal@ua.pt

This tutorial should work with any Debian-based distro (Ubuntu, Kubuntu, Linux Mint, ...).

Download xenomai-2.6.2.1.tar.bz2 and linux-3.2.21.tar.bz2. Xenomai can be downloaded from it's website. To download the kernel, go to www.kernel.org and copy a download link from the main page. Just use that address with the correct name in the end to download this version.

If you are using the same xenomai and kernel versions, you can just copy every line in this guide. Just be careful with the comments, since you need to change some settings in a few of them. This build is for x64. If you are using x86, change the lines that have x86_64 to x86.

It's assumed that the packages are downloaded to the SOURCE_PATH dir.

```
//Before starting, install the required packages (you might
    need more)
$sudo apt-get install build-essential qt4-dev-tools

//Get root permissions and move to source folder.

$sudo -s -H
cd /usr/src/

//Unpack the archives

$tar xvjf <SOURCE_PATH>/xenomai-2.6.2.1.tar.bz2
$tar xvjf <SOURCE_PATH>/linux-3.2.21.tar.bz2

//Create sym links for the folders

$ln -s linux-3.2.21 linux
$ln -s xenomai-2.6.2.1 xenomai

//Copy the old config file. DO NOT ALTER THIS LINE. Run it
    exactly like this.

$cp /boot/config-$(uname -r) linux/.config
```

```
//We then patch the kernel with the xenomai patch.

$xenomai/scripts/prepare-kernel.sh --arch=x86_64 --linux=/usr/
    src/linux --adeos=/usr/src/xenomai/ksrc/arch/x86/patches/
    ipipe-core-3.2.21-x86-4.patch

//Prepare the kernel configuration

$cd linux
$make oldconfig //just press Enter to everything

//-->CHANGES ARE REQUIRED HERE<--

//After you enter this command, a window will pop up. The first
     step is to go to "Processor Type and Features" and choose
    your "Processor Family". After that, you'll need to Ctrl-F
    the following options and UNSELECT them: CONFIG_CPU_FREQ,
    CONFIG_CPU_IDLE, CONFIG_CC_STACKPROTECTOR, CONFIG_KGDB,
    CONFIG_APM, CONFIG_ACPI_PROCESSOR, CONFIG_INTEL_IDLE,
    CONFIG_INPUT_PCSPKR, CONFIG_PCI_MSI (This one might be
    greyed out). Now search for AHCI and enable "AHCI SATA
    Support", to be able to use SATA HDDs.

$make xconfig
$cp .config /boot/config-3.2.21-xenomai

//Edit the Makefile with your text editor and add -xenomai to
    the extraversion line.

$gedit Makefile

//Now we are ready to build the kernel and the modules. You'll
    now have to wait up to 2h, less if you have done this
    before. If you have to pause it, do a Ctrl-Z, and then do
    $fg to continue the make. If you do a Ctrl-C, you'll have
    to do a make clean and start this line over.

$make -j5 && make -j5 modules && make -j5 bzImage && make
    modules_install
```

```
//Do the last boot configurations

$mkinitramfs -o /boot/initrd.img-3.2.21-xenomai.img 3.2.21-
    xenomai
$cp arch/x86_64/boot/bzImage /boot/vmlinuz-3.2.21-xenomai
$grub-mkconfig -o /boot/grub/grub.cfg

//Now reboot the computer, and start with the xenomai kernel
    option in grub.

//Install xenomai runtime

$sudo -s -H
$cd /usr/src/xenomai
$./configure
$make install

//Edit the .bashrc and the .profile files and enter the
    following line to the end of both files: export
    LD_LIBRARY_PATH=/usr/xenomai/lib/:$LD_LIBRARY_PATH

$cd ~
$gedit .profile
$gksudo gedit .bashrc

//Close all the terminals and open again.

//Test xenomai

$cd /usr/xenomai/bin
```