/\* The document shows the step by step procedure to download, apply RT\_PREEMPT patch,

compile and install the kernel for RT\_linux \*/

Kernel Version employed : 3.18.27

RT\_PREEMPT Patch : 3.18.27-rt27

**STEP 1 :** Download the kernel and patch from respective source

cmd :

$ *wget ftp://ftp.kernel.org/pub/linux/kernel/v2.6/linux-3.18.27.tar.bz2*

$ *wget http://www.kernel.org/pub/linux/kernel/projects/rt/patches-3.18.27-rt27.tar.gz*

Note : Verify the sources before executing the commands.

**STEP 2:** Move the Kernel tarball to kernel source directory (/usr/src/).

cmd :

move the tarball to /usr/src/ using linux copy command

$ *cd /usr/src/* /\* Move the source directory \*/

$ *tar xvfj linux-3.18.27.tar.bz2* /\* Untar and unzip the tarball \*/

$ *cd linux-3.18.27/* /\* open the source folder \*/

$ *make mrproper*\* /\* to remove any object files \*/

$ *make clean* /\* to remove \*/

**STEP 3:** Untar and tarball and apply patch with Patch level P1

move to the location for downloaded patch folder.Untar them using appropriate commands. You will get a file named "patch-3.18.27-rt27.patch".

cmd :

*cd /usr/src/linux-3.18.27*

$ *patch -p1 < PATH/TO/PATCH/FILE*

**STEP 4**: Kernel Configuration

*make menuconfig*\*\*

importantly;

1. Enable CONFIG\_PREEMPT\_RT

Go to Processor type & features -> Preemption model -> Enable full Preemption

2.Activate the High-Resolution-Timer

Go to general setup -> Timer Sub System -> Enable High resolution timers

Save as .config file

**STEP 5:** Compile the linux Kernel

cmd :

*make*

**STEP 6:** Compile the kernel modules

cmd :

*make modules*

**STEP 7:** Install the kernel modules

cmd :

*make modules\_install*

**STEP 8:** Install the new kernel

cmd :

*make install*

**STEP 9 :** Reboot to new kernel

\*Implement make help to get the details of respective make

\*\* add sudo for root permission;if any libraries are needed , install them.

References:

1. https://rt.wiki.kernel.org/index.php/RT\_PREEMPT\_HOWTO

2. README File in /usr/src/3.x.y.z

3. https://www.kernel.org/doc/Documentation/applying-patches.txt

4. http://bodhizazen.net/Tutorials/kernel

5. http://www.thegeekstuff.com/2013/06/compile-linux-kernel/

6. http://www.haifux.org/lectures/88-sil/kernel-compilation.html