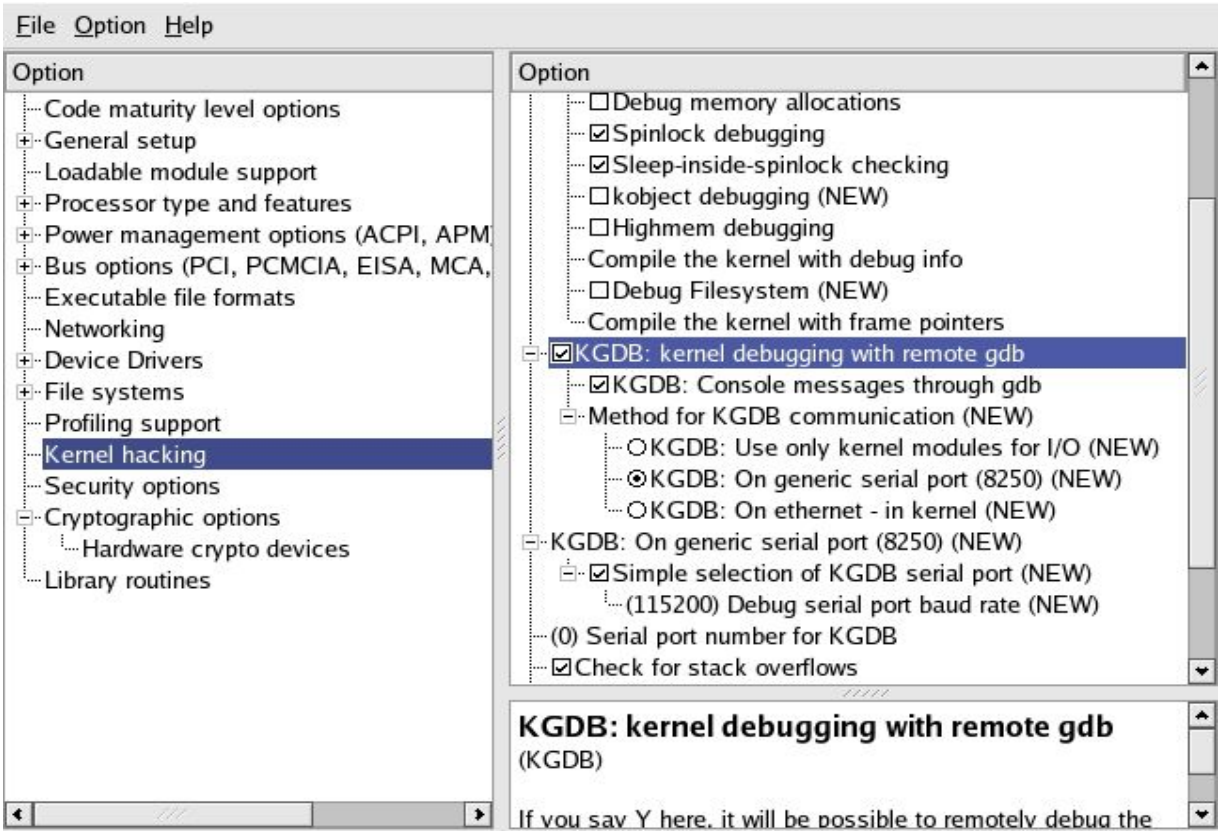
# KGDB Quick Start

1. **Software setup and applying the kgdb patch**
   1. Downloaded Linux kernel source : linux-2.6.15.5.tar.bz2
   2. Downloaded the Kgdb patch : linux-2.6.15.5-kgdb-2.4.tar.bz2
   3. Unzip the kernel sources
      *cd ${BASE_DIR}*
      *tar -jxvf linux-2.6.15.5.tar.bz2*
   4. cd ${BASE_DIR}/linux-2.6.15.5
   5. Unzip the kgdb patch
      *tar -jxvf linux-2.6.15.5-kgdb-2.4.tar.bz2*

      Make sure that you are in the ${BASE_DIR}/linux-2.6.15.5 directory and then apply Kgdb patches :
      *patch -p1 < ${BASE_DIR}/linux-2.6.15.5-kgdb-2.4/core-lite.patch*
      *.....*
      *patch -p1 < ${BASE_DIR}/linux-2.6.15.5-kgdb-2.4/i386.patch*

2. **Compiling the kernel on the development machine**
   1. In the ${BASE_DIR}/linux-2.6.15.5/Makefile, set the EXTRAVERSION = -kgdb
   2. make xconfig or make oldconfig
      Select the options appropriate for the target machine Hardware.
      Select the options pertaining to kgdb under "Kernel hacking" .



3. make bzImage
4. Transfer the built kernel to the Target machine from the Development machine .
   Copy the Kernel image from *${BASE_DIR}/linux-2.6.15.5/arch/i386/boot/bzImage* to the target machine as */boot/vmlinuz-2.6.15.5-kgdb*
   Copy the Map file from *${BASE_DIR}/linux-2.6.15.5/System.map* to the target machine as */boot/System.map-2.6.15.5-kgdb*
   Also create links,
   *ln -s /boot/vmlinuz-2.6.15.5-kgdb /boot/vmlinuz*
   *ln -s /boot/System.map-2.6.15.5-kgdb /boot/System.map*
5. Edit the /boot/grub/grub.conf file in the target machine to have the kgdb enabled kernel entry.
   *title Linux-2.6.15.5-kgdb*
   *root (hd0,0)*
   *kernel /boot/vmlinuz-2.6.15.5-kgdb ro root=/dev/hda1 kgdbwait*

## 3. Starting the debug session

1. After booting the target machine will wait for the host development machine to connect, by displaying the message :-
   *Waiting for connection from remote gdb...*
2. cd ${BASE_DIR}/linux-2.6.15.5
3. For setting a debug session with baud rate of 115200 on */dev/ttyS0* , run as "root" user:-
   *<root#> gdb ./vmlinux*
   *GNU gdb Red Hat Linux (6.0post-0.20040223.17rh)*
   *Copyright 2004 Free Software Foundation, Inc.*
   *GDB is free software, covered by the GNU General Public License, and you are*
   *welcome to change it and/or distribute copies of it under certain conditions.*
   *Type "show copying" to see the conditions.*
   *There is absolutely no warranty for GDB. Type "show warranty" for details.*
   *This GDB was configured as "i386-redhat-linux-gnu"...Using host libthread_db library "/lib/tls/libthread_db.so.1".*
   *(gdb) set remotebaud 115200*
   *(gdb) target remote /dev/ttyS0*
   *Remote debugging using /dev/ttyS0*
   *breakpoint () at kernel/kgdb.c:1212*
   *1212 atomic_set(&kgdb_setting_breakpoint, 0);*
   *warning: shared library handler failed to enable breakpoint*
   *(gdb)*
4. For further commands refer http://kgdb.linsyssoft.com/tockdebug.htm

## 4. Using kgdb ethernet interface

1. Add following line in the grub entry :
   *kgdboe=@10.0.0.6/,@10.0.0.3/ (that's kgdboe=@LOCAL-IP/,@REMOTE-IP/)*
   # Sample *grub.conf* which will by default boot the kgdb enabled kernel
   *title Linux-2.6.15.5-kgdb(eth)*
   *root (hd0,0)*
   *kernel /boot/vmlinuz-2.6.15.5-kgdb ro root=/dev/hda1 kgdboe=@10.0.0.6/,@10.0.0.3/ console=ttyS0,115200*
2. Then for starting the debug session give following command on gdb.
   *(gdb) ./vmlinux*
   *(gdb) target remote udp:HOSTNAME:6443*
3. For further commands refer http://kgdb.linsyssoft.com/tockdebug.htm

## 5. Useful links and Miscellaneous information

1. Useful Links :
   http://kgdb.linsyssoft.com/
   http://kgdb.linsyssoft.com/downloads/
2. Bug Report :
   kgdb-bugreport@lists.sourceforge.net