실습 2-3: BBB용 커널 빌드하기

1. 준비

$HOME/ESP2018/chap02/kernel 디렉토리를 만들고 이동한다. xconfig를 이용하여 커널을 설정하기 위해 필요한 패키지를 미리 설치한다.

```
ohheum@ubuntu:~/ESP2018/chap02/kernel$ sudo apt-get install libqt4-dev g++
```

2. 커널 다운로드 및 빌드하기

패치... 두개의 차이정보를 저장해두는 파일

```
ohheum@ubuntu:~/ESP2018/chap02/kernel$ git clone git://git.kernel.org/pub/scm/linux/kernel/git/stable/linux-stable.git
Cloning into 'linux-stable'...
remote: Counting objects: 4967237, done.
remote: Compressing objects: 100% (395364/395364), done.
Receiving objects: 100% (4967237/4967237), 1.11 GiB | 3.54 MiB/s, done.
remote: Total 4967237 (delta 319592), reused 0 (delta 0)
Resolving deltas: 100% (4102064/4102064), done.
Checking connectivity... done.
Checking out files: 100% (52914/52914), done.

ohheum@ubuntu:~/ESP2018/chap02/kernel$ ls
linux-stable

ohheum@ubuntu:~/ESP2018/chap02/kernel$ cd linux-stable

ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ ls
arch     crypto         include  kernel       net             security
block    Documentation  init     lib          README          sound
certs    drivers        ipc      MAINTAINERS  REPORTING-BUGS  tools
COPYING  firmware       Kbuild   Makefile     samples         usr
CREDITS  fs             Kconfig  mm           scripts         virt

ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ git checkout v4.9.9
Checking out files: 100% (26209/26209), done.
Note: checking out 'v4.9.9'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by performing another checkout.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -b with the checkout command again. Example:

  git checkout -b new_branch_name

HEAD is now at 27f1b7f... Linux 4.9.9

ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ export ARCH=arm CROSS_COMPILE=arm-linux-gnueabihf-
```

우리는 크로스 컴파일링을 하고 있다. export를 까먹으면 안된다.

```
/* .config 파일이 있는지, 있으면 내용을 확인 */
```

```
ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ make help
 …

  neponset_defconfig       - Build for neponset
  netwinder_defconfig      - Build for netwinder
  netx_defconfig           - Build for netx
  nhk8815_defconfig        - Build for nhk8815
  nuc910_defconfig         - Build for nuc910
  nuc950_defconfig         - Build for nuc950
  nuc960_defconfig         - Build for nuc960
  omap1_defconfig          - Build for omap1
  omap2plus_defconfig      - Build for omap2plus
  …
```

특정 아키텍처에 대한 디폴트설정이다.

```
ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ make omap2plus_defconfig
  HOSTCC  scripts/basic/fixdep
  HOSTCC  scripts/kconfig/conf.o
  SHIPPED scripts/kconfig/zconf.tab.c
  SHIPPED scripts/kconfig/zconf.lex.c
  SHIPPED scripts/kconfig/zconf.hash.c
  HOSTCC  scripts/kconfig/zconf.tab.o
  HOSTLD  scripts/kconfig/conf
#
# configuration written to .config
#

ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ make xconfig

// 특별히 설정을 수정할 사항이 없으므로 잠시 구경만 하고 xconfig 창을 닫아서 종료한다.

ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ make -j 4

ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ ls arch/arm/boot/
bootp  compressed  dts  Image  install.sh  Makefile  zImage

ohheum@ubuntu:~/ESP2018/chap02/kernel/linux-stable$ make kernelversion
4.9.9
```

기본 아키텍처명