

Building Linux Kernel Image for KB9202 board

- ✓ Download Linux kernel source from kernel.org
- ✓ Follow, by these below mentioned commands
 1. # tar xvf linux-2.6.xx
 2. # make ARCH=arm menuconfig

General setup

the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes f
<?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

^(-)

```
[*] Automatically append version information to the version string
    Kernel compression mode (Gzip) --->
[ ] Support for paging of anonymous memory (swap)
[*] System V IPC
[*] POSIX Message Queues
[*] BSD Process Accounting
[ ]   BSD Process Accounting version 3 file format
[ ] Export task/process statistics through netlink (EXPERIMENTAL)
[*] Auditing support
    RCU Subsystem --->
<*> Kernel .config support
[*] Enable access to .config through /proc/config.gz
(17) Kernel log buffer size (16 => 64KB, 17 => 128KB)
[ ] Control Group support --->
[ ] enable deprecated sysfs features to support old userspace tools
[ ] Kernel->user space relay support (formerly relayfs)
[ ] Namespaces support (NEW)
[*] Initial RAM filesystem and RAM disk (initramfs/initrd) support
    ()   Initramfs source file(s)
[*] Support initial ramdisks compressed using gzip (NEW)
[ ] Support initial ramdisks compressed using bzip2 (NEW)
[ ] Support initial ramdisks compressed using LZMA (NEW)
[ ] Support initial ramdisks compressed using LZO (NEW)
[*] Optimize for size
[*] Configure standard kernel features (for small systems) --->
    Kernel Performance Events And Counters --->
[*] Enable VM event counters for /proc/vmstat (NEW)
[*] Enable SLUB debugging support (NEW)
[*] Disable heap randomization
    Choose SLAB allocator (SLUB (Unqueued Allocator)) --->
[ ] Profiling support
[ ] Kprobes
```

v(+)

<Select>

< Exit >

< Help >



Linux Kernel v2.6.35.8 Configuration

Enable loadable module support

keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> module <Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

-- Enable loadable module support

- [] Forced module loading
- [*] Module unloading
- [] Forced module unloading
- [*] Module versioning support
- [*] Source checksum for all modules

System Type

arrow keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Pressing <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

[*] MMU-based Paged Memory Management Support

ARM system type (Atmel AT91) --->

Atmel AT91 System-on-Chip --->

*** Processor Type ***

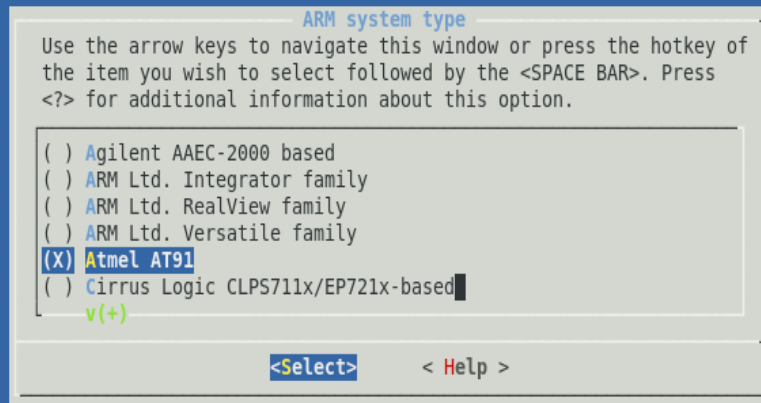
*** Processor Features ***

[*] Support Thumb user binaries

[] Disable I-Cache (I-bit)

[] Disable D-Cache (C-bit)

[] Force write through D-cache



Atmel AT91 System-on-Chip

row keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Pressing <Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

Atmel AT91 Processor (AT91RM9200) --->
*** AT91RM9200 Board Type ***
[ ] Ajeco 1ARM Single Board Computer
[ ] Atmel AT91RM9200-DK Development board
[ ] Atmel AT91RM9200-EK Evaluation Kit
[ ] Cogent CSB337
[ ] Cogent CSB637
[ ] Conitec ARM&EVA
[ ] Embest ATEB9200
[*] KwikByte KB920x
[ ] picotux 200
[ ] Sperry-Sun KAFA board
[ ] emQbit ECB_AT91 SBC
[ ] ucDragon YL-9200
[ ] Eukrea CPUAT91
[ ] eco920
*** AT91 Board Options ***
*** AT91 Feature Selections ***
[*] Programmable Clocks
(128) Kernel HZ (jiffies per second)
Select a UART for early kernel messages (DBGU) --->
  
```

ifig - Linux Kernel v2.6.35.8 Configuration

Kernel Features

Arrow keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```
[*] Tickless System (Dynamic Ticks)
[*] High Resolution Timer Support
    Memory split (3G/1G user/kernel split) --->
    Preemption Model (Preemptible Kernel (Low-Latency Desktop)) --->
[*] Use the ARM EABI to compile the kernel
[*] Allow old ABI binaries to run with this kernel (EXPERIMENTAL)
[ ] High Memory Support (EXPERIMENTAL)
    Memory model (Flat Memory) --->
[ ] Enable KSM for page merging
(4096) Low address space to protect from user allocation
[ ] Timer and CPU usage LEDs
[ ] Use kernel mem{cpy,set}() for {copy_to,clear}_user() (EXPERIMENTAL)
```

Boot options

arrow keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```
(0x10000000) Compressed ROM boot loader base address
(0x20040000) Compressed ROM boot loader BSS address
[ ] Compressed boot loader in ROM/flash
(noinitrd root=/dev/mtdblock0 rootfstype=jffs2 mem=64M) Default kernel command string
[ ] Always use the default kernel command string
[ ] Kernel Execute-In-Place from ROM
[*] Kexec system call (EXPERIMENTAL)
[*] Export atags in procfs
```


Floating point emulation

Arrow keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

*** At least one emulation must be selected ***

- [*] **N**WFP math emulation
- [] **S**upport extended precision
- [] **F**astFPE math emulation (EXPERIMENTAL)

Device Drivers

w keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

    Generic Driver Options --->
< > Connector - unified userspace <-> kernel space linker --->
[*] Memory Technology Device (MTD) support --->
< > Parallel port support --->
[*] Misc devices --->
    SCSI device support --->
[*] Network device support --->
[ ] ISDN support --->
< > Telephony support --->
    Input device support --->
    Character devices --->
< > I2C support --->
[ ] SPI support --->
    PPS support --->
-*- GPIO Support --->
< > Dallas's 1-wire support --->
< > Power supply class support --->
< > Hardware Monitoring support --->
< > Generic Thermal sysfs driver --->
[*] Watchdog Timer Support --->
    Sonics Silicon Backplane --->
[*] Multifunction device drivers --->
[ ] Voltage and Current Regulator Support --->
< > Multimedia support --->
    Graphics support --->
< > Sound card support --->
[ ] HID Devices --->
[*] USB support --->
<*> MMC/SD/SDIO card support --->
< > Sony MemoryStick card support (EXPERIMENTAL) --->
[ ] LED Support --->
[ ] Accessibility support --->
v(+)
```



NAND Device Support

w keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press ><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```
--- NAND Device Support
[ ] Verify NAND page writes
[ ] Enable chip ids for obsolete ancient NAND devices
(0xFF108018) Denali NAND size scratch register address
< > GPIO NAND Flash driver
< > DiskOnChip 2000, Millennium and Millennium Plus (NAND reimplementation) (EXPERIMENTAL)
[*] Support for NAND Flash / SmartMedia on AT91 and AVR32
    ECC management for NAND Flash / SmartMedia on AT91 / AVR32 (Software ECC) --->
< > Support for NAND Flash Simulator
< > Support for generic platform NAND driver
< > MTD driver for Olympus MAUSB-10 and Fujifilm DPC-R1
```



Device Drivers

keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. <Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module <> module capable

```
Generic Driver Options --->
< > Connector - unified userspace <-> kernelspace linker --->
<*> Memory Technology Device (MTD) support --->
< > Parallel port support --->
[*] Misc devices --->
    SCSI device support --->
    [*] Network device support --->
    [ ] ISDN support --->
    < > Telephony support --->
        Input device support --->
        Character devices --->
    < > I2C support --->
    [ ] SPI support --->
        PPS support --->
    -*. GPIO Support --->
    < > Dallas's 1-wire support --->
    < > Power supply class support --->
    < > Hardware Monitoring support --->
    < > Generic Thermal sysfs driver --->
    [*] Watchdog Timer Support --->
        Sonics Silicon Backplane --->
    [*] Multifunction device drivers --->
    [ ] Voltage and Current Regulator Support --->
    < > Multimedia support --->
        Graphics support --->
    < > Sound card support --->
    [ ] HID Devices --->
    [*] USB support --->
    <*> MMC/SD/SDIO card support --->
    < > Sony MemoryStick card support (EXPERIMENTAL) --->
    [ ] LED Support --->
    [ ] Accessibility support --->
v(+)
```

Misc devices

w keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. I
><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

-- Misc devices

```
[*] Atmel AT32/AT91 Timer/Counter Library
[*] TC Block Clocksource
(0) TC Block
<*> Device driver for Atmel SSC peripheral
< > Enclosure Services
< > Silicon Labs C2 port support (EXPERIMENTAL) --->
EEPROM support --->
< > Intel Wireless MultiCom Top Driver
```

Network device support

ys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features <C> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

--- Network device support
< > Dummy net driver support
< > Bonding driver support
< > MAC-VLAN support (EXPERIMENTAL)
< > EQL (serial line load balancing) support
< > Universal TUN/TAP device driver support
< > Virtual ethernet pair device
< > PHY Device support and infrastructure --->
[*] Ethernet (10 or 100Mbit) --->
[ ] Ethernet (1000 Mbit) --->
[ ] Ethernet (10000 Mbit) --->
[*] Wireless LAN --->
    *** Enable WiMAX (Networking options) to see the WiMAX drivers ***
    USB Network Adapters --->
[ ] Wan interfaces support --->
< > PPP (point-to-point protocol) support
< > SLIP (serial line) support
< > Network console logging support
  
```

Watchdog Timer Support

keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

--- Watchdog Timer Support
[ ] Disable watchdog shutdown on close
    *** Watchdog Device Drivers ***
< > Software watchdog
< * > AT91RM9200 watchdog
< > Max63xx watchdog
    *** USB-based Watchdog Cards ***
< > Berkshire Products USB-PC Watchdog
  
```

USB support

navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Pressing <Q> to exit, <H> for Help, <S> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

--- USB support
<*> Support for Host-side USB
[ ] USB verbose debug messages
[ ] USB announce new devices
*** Miscellaneous USB options ***
[*] USB device filesystem (DEPRECATED)
[*] USB device class-devices (DEPRECATED)
[ ] Dynamic USB minor allocation
< > USB Monitor
< > Enable Wireless USB extensions (EXPERIMENTAL)
< > Support WUSB Cable Based Association (CBA)
*** USB Host Controller Drivers ***
< > Cypress C67x00 HCD support
< > OXU210HP HCD support
< > ISP116X HCD support
< > ISP 1760 HCD support
< > ISP1362 HCD support
< > OHCI HCD support
< > SL811HS HCD support
< > R8A66597 HCD support
< > Host Wire Adapter (HWA) driver (EXPERIMENTAL)
< > Inventra Highspeed Dual Role Controller (TI, ADI, ...)
*** USB Device Class drivers ***
< > USB Modem (CDC ACM) support
< > USB Printer support
< > USB Wireless Device Management support
< > USB Test and Measurement Class support
*** NOTE: USB_STORAGE depends on SCSI but BLK_DEV_SD may ***
*** also be needed; see USB_STORAGE Help for more info ***
[*] The shared table of common (or usual) storage devices
*** USB Imaging devices ***
< > USB Mustek MDC800 Digital Camera support
v(+)
```


MMC/SD/SDIO card support

w keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. I
><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

--- MMC/SD/SDIO card support
[ ] MMC debugging
[ ] Assume MMC/SD cards are non-removable (DANGEROUS)
*** MMC/SD/SDIO Card Drivers ***
< > SDIO UART/GPS class support
< > MMC host test driver
*** MMC/SD/SDIO Host Controller Drivers ***
< > Secure Digital Host Controller Interface support
< > Atmel SD/MMC Driver
<M> AT91 SD/MMC Card Interface support
< > Atmel Multimedia Card Interface support
  
```

Real Time Clock

keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Pressing <Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

--- Real Time Clock
[*] Set system time from RTC on startup and resume
(rtc0) RTC used to set the system time
[ ] RTC debug support
    *** RTC interfaces ***
[*] /sys/class/rtc/rtcN (sysfs)
[*] /proc/driver/rtc (procfs for rtc0)
[*] /dev/rtcN (character devices)
[ ]   RTC UIE emulation on dev interface
< > Test driver/device
    *** SPI RTC drivers ***
    *** Platform RTC drivers ***
< > PC-style 'CMOS'
< > Dallas DS1286
< > Dallas DS1511
< > Maxim/Dallas DS1553
< > Maxim/Dallas DS1742/1743
< > Simtek STK17TA8
< > ST M48T86/Dallas DS12887
< > ST M48T35
< > ST M48T59/M48T08/M48T02
< > Oki MSM6242
< > TI BQ4802
< > Ricoh RP5C01
< > EM Microelectronic V3020
    *** on-CPU RTC drivers ***
<+> AT91RM9200 or AT91SAM9RL
  
```

Device Drivers

ys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <X> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

    Generic Driver Options --->
< > Connector - unified userspace <-> kernelspace linker --->
<*> Memory Technology Device (MTD) support --->
< > Parallel port support --->
[*] Misc devices --->
    SCSI device support --->
[*] Network device support --->
[ ] ISDN support --->
< > Telephony support --->
    Input device support --->
|| Character devices --->
< > I2C support --->
[ ] SPI support --->
    PPS support --->
-*- GPIO Support --->
< > Dallas's 1-wire support --->
< > Power supply class support --->
< > Hardware Monitoring support --->
< > Generic Thermal sysfs driver --->
[*] Watchdog Timer Support --->
    Sonics Silicon Backplane --->
[*] Multifunction device drivers --->
[ ] Voltage and Current Regulator Support ---->
< > Multimedia support --->
    Graphics support --->
< > Sound card support --->
[ ] HID Devices --->
[*] USB support --->
<*> MMC/SD/SDIO card support --->
< > Sony MemoryStick card support (EXPERIMENTAL) --->
[ ] LED Support --->
[ ] Accessibility support --->
v(+)
```

Character devices

keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <sc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```
[*] Virtual terminal (NEW)
[*]   Enable character translations in console (NEW)
[*]   Support for console on virtual terminal (NEW)
[ ]   Support for binding and unbinding console drivers
[*] /dev/kmem virtual device support
[ ] Non-standard serial port support
< > GSM MUX line discipline support (EXPERIMENTAL)
Serial drivers --->
[*] Unix98 PTY support (NEW)
[ ]   Support multiple instances of devpts
[ ] Legacy (BSD) PTY support
< > IPMI top-level message handler --->
< > Hardware Random Number Generator Core support
< > Siemens R3964 line discipline
< > TPM Hardware Support --->
< > Log panic/oops to a RAM buffer
```

Serial drivers

the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```
< > 8250/16550 and compatible serial support
*** Non-8250 serial port support ***
[*] AT91 / AT32 on-chip serial port support
[*]   Support for console on AT91 / AT32 serial port
[*]   Support DMA transfers on AT91 / AT32 serial port
[ ]   Install as device ttyATn instead of ttySn
< > Support for timberdale UART
< > Altera JTAG UART support
< > Altera UART support
```

Linux Kernel Configuration

keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <sc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```

    General setup --->
[*] Enable loadable module support --->
[ ] Enable the block layer --->
    System Type --->
    Bus support --->
    Kernel Features --->
    Boot options --->
    CPU Power Management --->
    Floating point emulation --->
    Userspace binary formats --->
    Power management options --->
[*] Networking support --->
    Device Drivers --->
File systems --->
    Kernel hacking --->
    Security options --->
< > Cryptographic API --->
    Library routines --->
---
    Load an Alternate Configuration File
    Save an Alternate Configuration File

```

File systems

navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```
[*] Enable POSIX file locking API (NEW)
[ ] Dnotify support
[*] Inotify file change notification support
[*] Inotify support for userspace
[ ] Quota support
< > Kernel automounter support
< > Kernel automounter version 4 support (also supports v3)
< > FUSE (Filesystem in Userspace) support
Caches --->
Pseudo filesystems --->
[*] Miscellaneous filesystems --->
[*] Network File Systems --->
-* Native language support --->
< > Distributed Lock Manager (DLM) --->
```

Miscellaneous filesystems

keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. <sc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

```
--- Miscellaneous filesystems
[*] Journalling Flash File System v2 (JFFS2) support
(0)   JFFS2 debugging verbosity (0 = quiet, 2 = noisy)
[*]   JFFS2 write-buffering support
[ ]   Verify JFFS2 write-buffer reads
[ ]   JFFS2 summary support (EXPERIMENTAL)
[ ]   JFFS2 XATTR support (EXPERIMENTAL)
[ ]   Advanced compression options for JFFS2
< >  UBIFS file system support
< >  LogFS file system (EXPERIMENTAL)
< >  ROM file system support
```


File systems

row keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Pressing <Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

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[*] Enable POSIX file locking API (NEW)
[ ] Dnotify support
[*] Inotify file change notification support
[*] Inotify support for userspace
[ ] Quota support
< > Kernel automounter support
< > Kernel automounter version 4 support (also supports v3)
< > FUSE (Filesystem in Userspace) support
    Caches --->
    Pseudo filesystems --->
[*] Miscellaneous filesystems --->
[*] Network File Systems --->
    *- Native language support --->
< > Distributed Lock Manager (DLM) --->
```

Network File Systems

w keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press ><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [] excluded <M> module < > module capable

--- Network File Systems

<Y> **NFS client support**

- [*] NFS client support for NFS version 3
- [] NFS client support for the NFSv3 ACL protocol extension
- [] NFS client support for NFS version 4 (EXPERIMENTAL)
- [*] Root file system on NFS
- < > NFS server support
- < > Secure RPC: Kerberos V mechanism (EXPERIMENTAL)
- < > Secure RPC: SPKM3 mechanism (EXPERIMENTAL)
- < > SMB file system support (OBSOLETE, please use CIFS)
- < > Ceph distributed file system (EXPERIMENTAL)
- < > CIFS support (advanced network filesystem, SMBFS successor)
- < > NCP file system support (to mount NetWare volumes)
- < > Coda file system support (advanced network fs)
- < > Andrew File System support (AFS) (EXPERIMENTAL)



```
# make ARCH=arm CROSS_COMPILE=$(CROSSTOOL_PATH)
```

Post execution of the above cmd., kernel image gets created under \$(LINUX_SRC)/arch/arm/boot directory

Add 64 byte uboot header to kernel image

mkimage

- A arm
- O linux
- T kernel
- C none
- a 0x20008000
- e 0x20008000
- n "Modified Kernel 30"
- d arch/arm/boot/Image ulmage

Thank you