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## Setup

- Between garden shed home and my oldest sons flat
  - ◆ WDS
- 2 Asus Premium
  - ◆ OpenWrt - rc5
  - ◆ USB HD
- 1 Linksys v5 - for sale, preferably swap for Asus Premium :)
  - ◆ dd-wrt v23 SP2
  - ◆ JTAG cable

# Basic alterations

## Asus 32MByte

mem ok with 32Mbyte (without the following, less memory)

```
nvrn set sdram_init=0x0009
nvrn set sdram_ncdl=0
nvrn commit
reboot
```

## JFFS

Needed for ipkg and others (rw filesystem)

```
nvrn set jffs_mounted=1
nvrn set enable_jffs2=1
nvrn set sys_enable_jffs2=1
nvrn set clean_jffs2=1
nvrn set sys_clean_jffs2=1
nvrn commit
```

reboot

## dd-wrt specific

### **/jffs/etc/config/\*.startup**

v23 starts executable files in /jffs/etc/config/\*.startup

### **/jffs/etc/config/S10modules.startup**

ipkg sometimes make modules.d files: like for USB. So make the following to insmod these modules

```
#!/bin/sh
for module in $(cat /jffs/etc/modules.d/*);do
    /sbin/insmod /jffs/lib/modules/2.4.30/$module.o
done
```

### **/jffs/etc/config/S90init.startup**

ipkg sometimes make init.d files

```
#!/usr/bin/sh
$(/jffs/etc/init.d/S* start)
```

## USB

### USB Core

Install the following modules for USB

```
#
ipkg install kmod-usb-uhci // this is for USB 1.1
ipkg install kmod-usb-core
ipkg install kmod-usb2
```

### USB HD

Install the following modules for filesystems:

```
ipkg install kmod-usb-storage
ipkg install kmod-vfat
ipkg install kmod-ext2
ipkg install kmod-ext3
```

## Mounting

Unfortunately, dd-wrt doesn't seem to look for a /jffs/etc/fstab ( [fstab referenceh](#) )

### /jffs/etc/config/S30mount.startup

```
#!/bin/sh
{
  read MOUNT_DEVICE MOUNT_POINT FS DUMP FSK
  i=0
  while [ $i -le 15 ];do
    if [ -e $MOUNT_DEVICE ];then
      mount $MOUNT_DEVICE $MOUNT_POINT
      break
    fi
    sleep 1
    i=$(expr $i + 1)
  done
}</jffs/etc/fstab
```

## USB Diverse

In order to use a multislot card reader, you must add the following parameter to the scsi\_mod in the file /jffs/etc/modules.d/60-usb-storage:

```
scsi_mod max_scsi_luns=8
```

(I don't know what this means but I put it in: I haven't tested it

## USB Printer

Suk! - no /dev/usb/lp0 in the standard dd-wrt.

One need's to mknod and it is not included..

Otherwise, if the /dev/usb/lp0 could be made (recompile or ..) the How-to for OpenWrt and printer would work

## Download Master Functionality

Not yet started.

## Serial/UART

Waiting for the max3232 ... Circuit made and Diagram coming here One should maybe install a serial board: helps with new firmware and maybe helps with not having to short pins (to be proven: don't know if it is true...) Anyway, it's a nice feeling with a console cable.

## MAXIM MAX3232

- [Max3232: Maxim's level converter 2 \\* ttl-rs232 @ 3.5v](#)

[http://www.dd-wrt.com/phpBB2/files/max3232\\_428.jpg](http://www.dd-wrt.com/phpBB2/files/max3232_428.jpg)

## Hennings-Electronic: Sejs, Denmark

[My friendly local electronics supplier](#)

## Asus

Solder points for ttl output:

Serial/UART

[http://www.dd-wrt.com/phpBB2/files/asus\\_ttl\\_111.jpg](http://www.dd-wrt.com/phpBB2/files/asus_ttl_111.jpg) The object here is to remove the solder in the holes and solder in a connector. Go carefully.

## Check Software

Ok, the connector is soldered on, so now we need to check software.

- start for example minicom and connect to ...UART2
- check that there is no echo of characters
- connect UART2 tx to rx
- check that there IS echo of characters
- connect UART2 tx to UART1 rx and UART2 rx to UART1 tx
- try and connect to prompt...

## The board

# Development

Development

## Firmware Modification Kit

started

## dd-wrt from source

My only chance for lp0???

Download Ubuntu and run in vmware

add-apt

collect sw

loose hair

<http://www.dd-wrt.com/phpBB2/viewtopic.php?t=4778> newmedia missing: touch and chmod x

Many "cannot execute binary file" compile again (only using development how to as help, not running scripts)

Just found: <http://www.dd-wrt.com/phpBB2/viewtopic.php?t=2638>

- not v.23 sp2

- wasn't able to apt-add uml-utilities
- BUT IT WORKS!!!

Now for v23 sp2 ...

<http://www.dd-wrt.com/phpBB2/viewtopic.php?t=3668>

Never got it to compile: now using Open Wrt which compiled first time

## OpenWRT

I now use OpenWrt on ASUS due to printer support and the source code can compile first time...

## Future ..

## Bluetooth

"Cool": someone has hooked bluetooth to Asus...

- Nice with PBX sw and a bluetooth headset (how to ring out ...hmm)
- Internet access for Mobil...
- GPS

Playtime

## Optware

Optware

## A funny thing happened after I dd-wrt'ed my boxes

You have probably NOT bricked your router if you continually loose wireless to it while going thru the panels.

Every time I left a dd-wrt www interface panel, with ping router and using wireless, I "lost" contact with the router. Repair wireless solved the problem until I moved between panels again.

This has happened on both the routers.

Be patient.

Enable 32MByte memory.

A funny thing happened after I dd-wrt'ed my boxes

The problem will go away.

(Needs more analysing)

## **Brick**

After first dd-wrt attempt: none since Had to short pins in the end

[<http://www.dd-wrt.com/phpBB2/viewtopic.php?t=3935>]