



## Contents

- 1 Hardware
  - ◆ 1.1 Specifications
  - ◆ 1.2 MTD Partitions
    - ◇ 1.2.1 CFE log
    - ◇ 1.2.2 Running DD-WRT
- 2 Flash Size
  - ◆ 2.1 Initial Flash Instructions
  - ◆ 2.2 Upgrade Flash
- 3 Overclocking
- 4 Bad Flash Recovery
- 5 Notes

## Hardware

### Specifications

<b>FCC ID</b>	PY309100105
<b>Power</b>	12 VDC, 1 A
<b>CPU</b>	Broadcom BCM4716B0 (300 MHz)
<b>Flash/RAM</b>	4 /32 MiB
<b>Wireless chip1</b>	Broadcom BCM4716B0
<b>Wireless protocols</b>	bgn
<b>Wireless MIMO config</b>	2x2:2
<b>Antenna connector</b>	U.FL
<b>WAN / LAN ports</b>	1 / 4 @ 10/100 Mb/s

## MTD Partitions

From a `dmesg` output:

### CFE log

```
CFE for WNR2000v2 version: v1.0.18
Build Date: Wed Sep  9 14:33:22 CST 2009
[...]
Creating 10 MTD partitions on "sflash":
0x00000000-0x00040000 : "boot"
0x00040000-0x00390000 : "linux"
0x000c0e78-0x00390000 : "rootfs"
0x00390000-0x003a0000 : "ML1"
0x003a0000-0x003b0000 : "ML2"
0x003b0000-0x003c0000 : "T_Meter1"
0x003c0000-0x003d0000 : "T_Meter2"
0x003d0000-0x003e0000 : "POT"
0x003e0000-0x003f0000 : "board_data"
0x003f0000-0x00400000 : "nvram"
```

### Running DD-WRT

```
Creating 5 MTD partitions on "sflash":
0x00000000-0x00040000 : "cfe"
0x00040000-0x003e0000 : "linux"
0x0018bc00-0x00390000 : "rootfs"
0x003f0000-0x00400000 : "nvram"
0x00390000-0x003e0000 : "ddwrt"
```

## Flash Size

DD-WRT replaces the *linux* partition and adds *ddwrt*, but *board\_data* and *nvram* must be preserved.

- Thus the size limit is:  $0x3E0000-0x40000=3712$  KB
- The CFE vmlinux loader times out when loading linux, so full build size may not be achievable.

## Initial Flash Instructions

THESE INSTRUCTIONS ARE FOR THE VERSION 2 MODEL ONLY! For V3 see [HERE](#).

- Also: V1, V4, and V5 are incompatible devices without u-boot mods (search the forums).

1. Read the [Firmware FAQ](#) and [Peacock announcement](#)
2. Find build links [here](#).
3. A known good initial flash trailed build is 15962: [K2.6\\_mini-WNR2000v2.chk](#) in the *broadcom\_K26* directory.
  - ◆ All trailed builds tested from 21061 and newer fail initial flash
  - ◆ The *broadcom\_K3X* build directory may list the WNR2000v2, but it is **too big to flash!**

## Netgear\_WNR2000V2

4. Push the reset button on the back of the router until the lights flash (or 30s), then release.
5. Attach an Ethernet cable to a router LAN port, and disable wireless on the computer.
6. Wait until you have a connection with the router then login to the router at <http://192.168.1.1/>
7. At the password prompt, put admin/admin or admin/password for the username/password
8. Go to the Router Upgrade link on the left side of the router gui and click on it
9. Navigate to and Choose the mini-WNR2000v2.chk file and confirm to upgrade to a different version
10. Wait FIVE full minutes after the upgrade appears to have finished. You can watch the lights on the front if you need something to do. As long as they are changing, you need to sit quietly and wait! If you screw this up you WILL brick your router. When the green and blue lights, and the connected port light have all stopped blinking, it should be ready as long as you have waited FIVE FULL MINUTES!
11. Log onto the router at <http://192.168.1.1/>
12. Set the username and password by TYPING in the boxes and hitting enter.
13. Reset the router as outlined in note 1 of the peacock announcement. THIS STEP IS IMPORTANT!
14. Set the password again then configure the router. Click *Save* on each tab, then when done click *Apply*
  - ◆ Remember to change the browser IP address if it was changed in the router configuration

## Upgrade Flash

Flash a K2.6\_mini.bin file (**not nv60k, nv64k, nor trailed builds**) via GUI or CLI: [Installation](#)

- Builds *after* 40723 fail to flash through at least 41418 (test build r40733 is the first to fail)
  - ◆ NOTE: The reset button code was broken in 40571 and fixed in build 40750.
- Build 42602 flashed from GUI, but required a power off and on

## Overclocking

**Attempt at your own risk** - it is recommended to add a heatsink and/or improve cooling.

The BCM4716 uses the pll20mhz\_table from [hndmips.c](#), and the CFE allows overclocking.

- Use the GUI, or (for more options) set clkfreq based on the pll20mhz\_table's *{cpu,ddr,axi}* settings.
- If manually setting, also set the nvram "overclocking" parameter to the *{cpu}* speed (or DD will reset it):

```
nvrnm set clkfreq={cpu,ddr,axi}
nvrnm set overclocking={cpu}
nvrnm commit && reboot
```

- The Samsung K4H561638?-LCCC RAM (where ? is 'J' or 'N') is DDR400 CL3: 200 MHz 'ddr' speed from hndmips.c.
- In one test, an overclock at 400,200,100 without a heatsink produced a max SoC surface temperature of only 53.8degC (128degF) after several speedtest runs. Eventually, 373,186,93 was selected and stable with *overclocking=373*.

# Bad Flash Recovery

This defaults to `boot_wait=0`, and the CFE for this model has fewer commands available than typical. Avoid using ``nvram erase`` if the TFTP is not working, as this can make things worse. There are three options for serial recovery with TFTP:

```
flash : flash1.trx
```

- This replaces the ``-cheader`` option, to flash trailed builds (OEM or *mini-WNR2000v2.chk*).

```
flash -noheader : flash1.trx
```

- This works for a bad DD-WRT flash with non-trailed builds so long as ``nvram erase`` is not used.

```
tftpd [running this will put the CFE into a wait state to receive a file via TFTP]
```

- This is the only to recover to OEM firmware, if nothing else works.

If normal TFTP does not work and serial is unavailable, recovering a brick (e.g. from flashing an oversize image) is possible via pin-short to enter TFTP mode. **This is not without risk!** Read [this thread](#) as timing is very important.

## Notes

### Forum device thread

It has been reported that Tomato firmware must be flashed from DD-WRT. Freshtomato Mini builds (no-USB K2.6 MIPSr2) might fit (unsupported by DD-WRT, and untested), e.g.:

- *freshtomato-K26-NVRAM32K\_RT-MIPSR2-{version}-Mini*
- *freshtomato-K26-NVRAM32K\_RT-MIPSR2-{version}-MiniIPv6*
- Differences: Versus *Mini*, *MiniIPv6* adds IPv6 but removes JFFS and HTTPS
- *Mini(Open)VPN* and *Mini(PPTD)VPN2* builds have size optimizations and lose JFFS, but may be oversized

WNR2000v2 has a known LED bug with firmware through 18777 (and 26490): LAN ports work properly but the LED (10/100Mb/s) color displays incorrectly:

- LAN1 and LAN2: always amber
- LAN3: always green
- LAN4: displays correctly (amber for 10Mb/s connection, green for 100Mb/s)