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D-Link DNS-320 & DNS-325 NAS: Userland configuration

I'm guessing you already know how to setup software RAID under linux and get the NAS to behave vaguely like a NAS. This is how to control the rest of the hardware now you have Linux booted.

The dns-nas-utils package ↑

I've put useful utilities in the dns-nas-utils deb package. To install it, do:

```
nas:~# wget -O dns-nas-utils.deb https://github.com/lent
nas:~# dpkg -i dns-nas-utils.deb
```

You can look at the source on github.

Controlling LEDs ↑

The LEDs can be turned on/off via. sysfs:

```
nas:~# echo 1 > /sys/class/leds/dns320\:red\:usb/brightr
nas:~# echo 0 > /sys/class/leds/dns320\:red\:usb/brightr
```

You can control what triggers them via. sysfs too. To make the power light pulsate with how loaded the system is, do:

```
nas:~# echo heartbeat > /sys/class/leds/dns325\:white\:p
```

The SATA activity LEDs are wired up so the SoC takes care of them, however you can change this by turning them to GPIO pins in `arch/arm/mach-kirkwood/board-dnskw.c`, and adding them to `arch/arm/boot/dts/kirkwood-dns320.dts`.

Using buttons ↑

To test, you can use the `evtest` tool to see button presses, `evtest /dev/input/event0`.

To trigger actions on button presses, use the `esekeyd` daemon:

```
nas:~# apt-get install esekeyd
```

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```
nas:~# cat <<EOF > /etc/esekeyd.conf
POWER:/sbin/halt
RESTART:/sbin/reboot
EJECTCD:/bin/umount /dev/sdc
EOF
```

And edit `/etc/default/esekeyd` to start the daemon.

Power-recovery ↑

The NAS has the ability to turn itself back on if power is interrupted.

I tried to make the kernel turn this on by default, unfortunately this has been broekn in the majority of mainline kernels, but you can do this in userspace by adding the following to `/etc/rc.local`:

```
# Tell PMU to turn back on after a power failure
echo 37 > /sys/class/gpio/export
echo out > /sys/class/gpio/gpio37/direction
echo 1 > /sys/class/gpio/gpio37/value
```

Temperature sensor ↑

There is a script in my dns-nas-utils package `dns_temp`, that can get the temperature regardless of which NAS you have.

DNS-320
: The temperature is read by sending commands to whatever is the other end of ttyS1. See the dns_temp source for the protocol.

DNS-325
: The temperature can be read from `/sys/class/hwmon/hwmon?/device/temp1_input`

Controlling Fan ↑

The dns-nas-utils package has a daemon to control the fan at similar thresholds to what d-link did.

The fan can be controlled directly by twiddling sysfs thus:

```
nas:~#  echo 6000 > /sys/class/hwmon/hwmon?/device/fan1_
nas:~#  echo 3000 > /sys/class/hwmon/hwmon?/device/fan1_
nas:~#  echo    0 > /sys/class/hwmon/hwmon?/device/fan1_
```