Sony Notebook Control Driver (SNC) Readme

This mini-driver drives the SNC and SPIC device present in the ACPI BIOS of the Sony Vaio laptops. This driver mixes both devices functions under the same (hopefully consistent) interface. This also means that the sonypi driver is obsoleted by sony-laptop now.

Fn keys (hotkeys):

Some models report hotkeys through the SNC or SPIC devices, such events are reported both through the ACPI subsystem as acpi events and through the INPUT subsystem. See the logs of /proc/bus/input/devices to find out what those events are and which input devices are created by the driver. Additionally, loading the driver with the debug option will report all events in the kernel log.

The "scancodes" passed to the input system (that can be remapped with udev) are indexes to the table "sony_laptop_input_keycode_map" in the sony-laptop.c module. For example the "FN/E" key combination (EJECTCD on some models) generates the scancode 20 (0x14).

Backlight control:

If your laptop model supports it, you will find sysfs files in the /sys/class/backlight/sony/ directory. You will be able to query and set the current screen brightness:

brightness	get/set screen brightness (an integer between 0 and 7)
actual_brightness	reading from this file will query the HW to get real brightness value
max_brightness	the maximum brightness value

Platform specific:

Loading the sony-laptop module will create a /sys/devices/platform/sony-laptop/ directory populated with some files.

You then read/write integer values from/to those files by using standard UNIX tools.

The files are:

brightness_default	screen brightness which will be set when the laptop will be rebooted
cdpower	power on/off the internal CD drive
audiopower	power on/off the internal sound card
lanpower	power on/off the internal ethernet card (only in debug mode)
bluetoothpower	power on/off the internal bluetooth device
fanspeed	get/set the fan speed

Note that some files may be missing if they are not supported by your particular laptop model.

Example usage:

```
# echo "1" > /sys/devices/platform/sony-laptop/brightness_default
```

sets the lowest screen brightness for the next and later reboots

```
# echo "8" > /sys/devices/platform/sony-laptop/brightness_default
```

sets the highest screen brightness for the next and later reboots

```
# cat /sys/devices/platform/sony-laptop/brightness_default
```

retrieves the value

```
# echo "0" > /sys/devices/platform/sony-laptop/audiopower
```

powers off the sound card

```
# echo "1" > /sys/devices/platform/sony-laptop/audiopower
```

powers on the sound card.

RFkill control:

More recent Vaio models expose a consistent set of ACPI methods to control radio frequency emitting devices. If you are a lucky owner of such a laptop you will find the necessary rfkill devices under /sys/class/rfkill. Check those starting with sony-* in:

```
# grep . /sys/class/rfkill/*/{state,name}
```

Development:

If you want to help with the development of this driver (and you are not afraid of any side effects doing strange things with your ACPI BIOS could have on your laptop), load the driver and pass the option 'debug=1'.

REPEAT:

DON'T DO THIS IF YOU DON'T LIKE RISKY BUSINESS.

In your kernel logs you will find the list of all ACPI methods the SNC device has on your laptop.

- For new models you will see a long list of meaningless method names, reading the DSDT table source should reveal that:

1. the SNC device uses an internal capability lookup table
2. SN00 is used to find values in the lookup table
3. SN06 and SN07 are used to call into the real methods based on offsets you can obtain iterating the table using SN00
4. SN02 used to enable events.

Some values in the capability lookup table are more or less known, see the code for all sony_call_snc_handle calls, others are more obscure.

- For old models you can see the GCDP/GCDP methods used to pwer on/off the CD drive, but there are others and they are usually different from model to model.

I HAVE NO IDEA WHAT THOSE METHODS DO.

The sony-laptop driver creates, for some of those methods (the most current ones found on several Vaio models), an entry under /sys/devices/platform/sony-laptop, just like the 'cdpower' one. You can create other entries corresponding to your own laptop methods by further editing the source (see the 'sony_nc_values' table, and add a new entry to this table with your get/set method names using the SNC_HANDLE_NAMES macro).

Your mission, should you accept it, is to try finding out what those entries are for, by reading/writing random values from/to those files and find out what is the impact on your laptop.

Should you find anything interesting, please report it back to me, I will not disavow all knowledge of your actions :)

See also http://www.linux.it/~malattia/wiki/index.php/Sony_drivers for other useful info.

Bugs/Limitations:

- This driver is not based on official documentation from Sony (because there is none), so there is no guarantee this driver will work at all, or do the right thing. Although this hasn't happened to me, this driver could do very bad things to your laptop, including permanent damage.
- The sony-laptop and sonypi drivers do not interact at all. In the future, sonypi will be removed and replaced by sony-laptop.
- spicctrl, which is the userspace tool used to communicate with the sonypi driver (through /dev/sonypi) is deprecated as well since all its features are now available under the sysfs tree via sony-laptop.