Power Management Interface

The power management subsystem provides a unified sysfs interface to userspace, regardless of what architecture or platform one is running. The interface exists in /sys/power/ directory (assuming sysfs is mounted at /sys).

/sys/power/state controls system power state. Reading from this file returns what states are supported, which is hard-coded to 'standby' (Power-On Suspend), 'mem' (Suspend-to-RAM), and 'disk' (Suspend-to-Disk).

Writing to this file one of those strings causes the system to transition into that state. Please see the file Documentation/power/states.txt for a description of each of those states.

/sys/power/disk controls the operating mode of the suspend-to-disk mechanism. Suspend-to-disk can be handled in several ways. We have a few options for putting the system to sleep - using the platform driver (e.g. ACPI or other suspend_ops), powering off the system or rebooting the system (for testing).

Additionally, /sys/power/disk can be used to turn on one of the two testing modes of the suspend-to-disk mechanism: 'testproc' or 'test'. If the suspend-to-disk mechanism is in the 'testproc' mode, writing 'disk' to /sys/power/state will cause the kernel to disable nonboot CPUs and freeze tasks, wait for 5 seconds, unfreeze tasks and enable nonboot CPUs. If it is in the 'test' mode, writing 'disk' to /sys/power/state will cause the kernel to disable nonboot CPUs and freeze tasks, shrink memory, suspend devices, wait for 5 seconds, resume devices, unfreeze tasks and enable nonboot CPUs. Then, we are able to look in the log messages and work out, for example, which code is being slow and which device drivers are misbehaving.

Reading from this file will display all supported modes and the currently selected one in brackets, for example

```
[shutdown] reboot test testproc
```

Writing to this file will accept one of

```
'platform' (only if the platform supports it)
'shutdown'
'reboot'
'testproc'
'test'
```

/sys/power/image_size controls the size of the image created by the suspend-to-disk mechanism. It can be written a string representing a non-negative integer that will be used as an upper limit of the image size, in bytes. The suspend-to-disk mechanism will do its best to ensure the image size will not exceed that number. However, if this turns out to be impossible, it will try to suspend anyway using the smallest image possible. In particular, if "0" is written to this file, the

suspend image will be as small as possible.

Reading from this file will display the current image size limit, which is set to 500 MB by default.

/sys/power/pm_trace controls the code which saves the last PM event point in the RTC across reboots, so that you can debug a machine that just hangs during suspend (or more commonly, during resume). Namely, the RTC is only used to save the last PM event point if this file contains '1'. Initially it contains '0' which may be changed to '1' by writing a string representing a nonzero integer into it.

To use this debugging feature you should attempt to suspend the machine, then reboot it and run

```
dmesg -s 1000000 | grep 'hash matches'
```

CAUTION: Using it will cause your machine's real-time (CMOS) clock to be set to a random invalid time after a resume.