Sensor API

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LPC'15

Thermal sensors that have a meaning

- Be able to associate sensors with devices
- Useful for power models in the kernel
  - The calculation of static power usually requires to know the temperature of the device
- Could be exported to userspace so that userspace can query the temperature of specific devices without relying on the name (type) of the thermal zone
  - Have a thermal zone for it without trip points or cooling devices
  - E.g. A symlink in `/sys/devices/foo` to the thermal zone associated with it
- We could do it by putting the sensor information in struct device and having a simple API to get the temperature for a given device:

```
int get_temp_for_device(struct device *dev, unsigned long *temp)
```


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Thermal sensors that have a meaning 2

- For platform code, you could add the sensor with something like `int add_thermal_sensor_to_device(struct thermal_zone_device *tzd, struct device *dev);`
- For devicetree, we could put a phandle in the sensor that points to the device.

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Combining sensors

- A thermal zone should be easily configured as a combination of multiple sensors
  - For platform code, something like `thermal_zone_add_sensor()` that passes another `get_temp()`
  - The `thermal-sensors` binding in device tree can accept multiple phandles.
- We could have some simple functions to aggregate the sensors like max or average for the thermal zone's `get_temp()`.
  - Max makes sense for thermal zones configured from device tree

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Additional operations

- We could have a simple filter for noisy sensors
  - It would be nice to have it, but it would not be usable from device tree, will it?

Thank You