Kernel driver lm80

Supported chips:
  * National Semiconductor LM80
    Prefix: 'lm80'
    Addresses scanned: I2C 0x28 - 0x2f
    Datasheet: Publicly available at the National Semiconductor website
             http://www.national.com/

Authors:
        Frodo Looijaard <frodol@dds.nl>,
        Philip Edelbrock <phil@netroedge.com>

Description

This driver implements support for the National Semiconductor LM80.
It is described as a 'Serial Interface ACPI-Compatible Microprocessor
System Hardware Monitor'.

The LM80 implements one temperature sensor, two fan rotation speed sensors,
seven voltage sensors, alarms, and some miscellaneous stuff.

Temperatures are measured in degrees Celsius. There are two sets of limits
which operate independently. When the HOT Temperature Limit is crossed,
this will cause an alarm that will be reasserted until the temperature
drops below the HOT Hysteresis. The Overtemperature Shutdown (OS) limits
should work in the same way (but this must be checked; the datasheet
is unclear about this). Measurements are guaranteed between -55 and
+125 degrees. The current temperature measurement has a resolution of
0.0625 degrees; the limits have a resolution of 1 degree.

Fan rotation speeds are reported in RPM (rotations per minute). An alarm is
triggered if the rotation speed has dropped below a programmable limit. Fan
readings can be divided by a programmable divider (1, 2, 4 or 8) to give
the readings more range or accuracy. Not all RPM values can accurately be
represented, so some rounding is done. With a divider of 2, the lowest
representable value is around 2600 RPM.

Voltage sensors (also known as IN sensors) report their values in volts.
An alarm is triggered if the voltage has crossed a programmable minimum
or maximum limit. Note that minimum in this case always means 'closest to
zero'; this is important for negative voltage measurements. All voltage
inputs can measure voltages between 0 and 2.55 volts, with a resolution
of 0.01 volt.

If an alarm triggers, it will remain triggered until the hardware register
is read at least once. This means that the cause for the alarm may
already have disappeared! Note that in the current implementation, all
hardware registers are read whenever any data is read (unless it is less
than 2.0 seconds since the last update). This means that you can easily
miss once-only alarms.

The LM80 only updates its values each 1.5 seconds; reading it more often
will do no harm, but will return 'old' values.