Kernel driver sis5595

Supported chips:
 * Silicon Integrated Systems Corp. SiS5595 Southbridge Hardware Monitor
   Prefix: 'sis5595'
   Addresses scanned: ISA in PCI-space encoded address
   Datasheet: Publicly available at the Silicon Integrated Systems Corp. site.

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  SiS southbridge has a LM78-like chip integrated on the same IC.
  This driver is a customized copy of lm78.c

  Supports following revisions:
        Version   PCI ID   PCI Revision
        1   1039/0008   AF or less
        2   1039/0008   B0 or greater

  Note: these chips contain a 0008 device which is incompatible with the
        5595. We recognize these by the presence of the listed
        "blacklist" PCI ID and refuse to load.

  NOT SUPPORTED   PCI ID   BLACKLIST PCI ID
        540   0008   0540
        550   0008   0550
       5513   0008   5511
       5581   0008   5597
       5582   0008   5597
       5597   0008   5597
        630   0008   0630
        645   0008   0645
        730   0008   0730
        735   0008   0735

Module Parameters

force_addr=0xaddr   Set the I/O base address. Useful for boards
                           that don't set the address in the BIOS. Does not do a
                           PCI force; the device must still be present in lspci.
                           Don't use this unless the driver complains that the
                           base address is not set.
                           Example: 'modprobe sis5595 force_addr=0x290'

Description

The SiS5595 southbridge has integrated hardware monitor functions. It also
has an I2C bus, but this driver only supports the hardware monitor. For the
I2C bus driver see i2c-sis5595.

The SiS5595 implements zero or one temperature sensor, two fan speed sensors, four or five voltage sensors, and alarms.

On the first version of the chip, there are four voltage sensors and one temperature sensor.

On the second version of the chip, the temperature sensor (temp) and the fifth voltage sensor (in4) share a pin which is configurable, but not through the driver. Sorry. The driver senses the configuration of the pin, which was hopefully set by the BIOS.

Temperatures are measured in degrees Celsius. An alarm is triggered once when the max is crossed; it is also triggered when it drops below the min value. Measurements are guaranteed between -55 and +125 degrees, with 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 4.08 volts, with a resolution of 0.016 volt.

In addition to the alarms described above, there is a BTI alarm, which gets triggered when an external chip has crossed its limits. Usually, this is connected to some LM75-like chip; if at least one crosses its limits, this bit gets set.

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 1.5 seconds since the last update). This means that you can easily miss once-only alarms.

The SiS5595 only updates its values each 1.5 seconds; reading it more often will do no harm, but will return 'old' values.

Problems

Some chips refuse to be enabled. We don't know why.
The driver will recognize this and print a message in dmesg.