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.