Kernel driver asb100
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Supported Chips:
  * Asus ASB100 and ASB100-A "Bach"
    Prefix: 'asb100'
    Addresses scanned: I2C 0x2d
    Datasheet: none released

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Description

This driver implements support for the Asus ASB100 and ASB100-A "Bach".
These are custom ASICs available only on Asus mainboards. Asus refuses to
supply a datasheet for these chips. Thanks go to many people who helped
investigate their hardware, including:

Vitaly V. Bursov
Alexander van Kaam (author of MBM for Windows)
Bertrik Sikken

The ASB100 implements seven voltage sensors, three fan rotation speed
sensors, four temperature sensors, VID lines and alarms. In addition to
these, the ASB100-A also implements a single PWM controller for fans 2 and
3 (i.e. one setting controls both.) If you have a plain ASB100, the PWM
controller will simply not work (or maybe it will for you... it doesn't for
me).

Temperatures are measured and reported in degrees Celsius.

Fan speeds are reported in RPM (rotations per minute). An alarm is
triggered if the rotation speed has dropped below a programmable limit.

Voltage sensors (also known as IN sensors) report values in volts.

The VID lines encode the core voltage value: the voltage level your
processor should work with. This is hardcoded by the mainboard and/or
processor itself. It is a value in volts.

Alarms: (TODO question marks indicate may or may not work)

0x0001 => in0 (?)
0x0002 => in1 (?)
0x0004 => in2
0x0008 => in3
0x0010 => temp1 (1)
0x0020 => temp2
0x0040 => fan1
0x0080 => fan2
0x0100 => in4
0x0200 => in5 (?) (2)
0x0400 => in6 (?) (2)
0x0800 => fan3
0x1000 => chassis switch

0x2000 => temp3

Alarm Notes:

(1) This alarm will only trigger if the hysteresis value is 127C.
I.e. it behaves the same as w83781d.

(2) The min and max registers for these values appear to
be read-only or otherwise stuck at 0x00.

TODO:
* Experiment with fan divisors > 8.
* Experiment with temp. sensor types.
* Are there really 13 voltage inputs? Probably not...
* Cleanups, no doubt...