

NAME

aibs - ASUSTeK AI Booster ACPI ATK0110 voltage, temperature and fan sensor

SYNOPSIS

To compile this driver into the kernel, place the following line in your kernel configuration file:

```
device aibs
```

Alternatively, to load the driver as a module at boot time, place the following line in loader.conf(5):

```
aibs_load="YES"
```

DESCRIPTION

The **aibs** driver provides support for the voltage, temperature and fan sensors available through the ATK0110 ASOC ACPI device on ASUSTeK motherboards. The number of sensors of each type, as well as the description of each sensor, varies according to the motherboard.

The driver supports an arbitrary set of sensors, provides descriptions regarding what each sensor is used for, and reports the current values as well as the supposed range specifications of each sensor's input as defined by the motherboard manufacturer through ACPI.

The range specifications are as follows:

- Voltage sensors have a lower and an upper range specification.
- Temperature sensors have two upper specifications.
- Fan sensors may either have only the lower specification, or, depending on the DSDT, one lower and one upper specification.

Sensor readings and the range specifications are made available through the `sysctl(3)` interface, and can be monitored with `sysctl(8)`. For example, on an ASUS V3-P5G965 barebone:

```
> sysctl dev.aibs.0.{volt,temp,fan}  
dev.aibs.0.volt.0: 1192 850 1600  
dev.aibs.0.volt.1: 3312 2970 3630  
dev.aibs.0.volt.2: 5017 4500 5500  
dev.aibs.0.volt.3: 12302 10200 13800  
dev.aibs.0.temp.0: 28.0C 80.0C 95.0C  
dev.aibs.0.temp.1: 55.0C 60.0C 95.0C
```

```
dev.aibs.0.fan.0: 878 600 7200
dev.aibs.0.fan.1: 0 700 7200

> sysctl -d dev.aibs.0.{volt,temp,fan}
dev.aibs.0.volt:
dev.aibs.0.volt.0: Vcore Voltage
dev.aibs.0.volt.1: +3.3 Voltage
dev.aibs.0.volt.2: +5 Voltage
dev.aibs.0.volt.3: +12 Voltage
dev.aibs.0.temp:
dev.aibs.0.temp.0: CPU Temperature
dev.aibs.0.temp.1: MB Temperature
dev.aibs.0.fan:
dev.aibs.0.fan.0: CPU FAN Speed
dev.aibs.0.fan.1: CHASSIS FAN Speed
```

Generally, sensors provided by the **aibs** driver may also be supported by certain other drivers or utilities that access the ISA / LPC or I2C / SMBus devices directly. The precise collection of **aibs** sensors is comprised of the sensors specifically utilised in the motherboard design, which may be supported through a combination of one or more physical hardware monitoring chips.

The **aibs** driver, however, provides the following advantages when compared to the native hardware monitoring drivers or other utilities:

- Sensor values from **aibs** are expected to be more reliable. For example, voltage sensors in many hardware monitoring chips can only sense voltage from 0 to 2 or 4 volts, and the excessive voltage is removed by the resistors, which may vary with the motherboard and with the voltage that is being sensed. In **aibs**, the required resistor factors are provided by the motherboard manufacturer through ACPI; in the native drivers, the resistor factors are encoded into the driver based on the chip manufacturer's recommendations. In essence, sensor values from **aibs** are very likely to be identical to the readings from the Hardware Monitor screen in the BIOS.
- Sensor descriptions from **aibs** are more likely to match the markings on the motherboard.
- Sensor range specifications are supported by **aibs**. The range specification is reported for each individual sensor as suggested by the motherboard manufacturer. For example, the threshold for the CPU temperature sensor is likely to be significantly higher than that for the chassis temperature sensor.
- Support for newer chips in **aibs**. Newer chips may miss a native driver, but should be supported

through **aibs** regardless.

SEE ALSO

sysctl(3), acpi(4), sysctl(8)

HISTORY

The **aibs** driver first appeared in OpenBSD 4.7, DragonFly 2.5, NetBSD 6.0 and FreeBSD 9.0.

An earlier version of the driver, **acpi_aiboost**, first appeared in FreeBSD 7.0 and NetBSD 5.0.

AUTHORS

The **aibs** driver was written for OpenBSD, DragonFly, NetBSD and FreeBSD by Constantine A. Murenin <cnst@FreeBSD.org>, Raouf Boutaba Research Group, David R. Cheriton School of Computer Science, University of Waterloo.

An earlier version of the driver, named **acpi_aiboost**, was written for FreeBSD by Takanori Watanabe.