Kernel driver nct6683

Supported chips:

- Nuvoton NCT6683D/NCT6687D

  Prefix: 'nct6683'

  Addresses scanned: ISA address retrieved from Super I/O registers

  Datasheet: Available from Nuvoton upon request

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Description

This driver implements support for the Nuvoton NCT6683D eSIO chip.

The chips implement up to shared 32 temperature and voltage sensors. It supports up to 16 fan rotation sensors and up to 8 fan control engines.

Temperatures are measured in degrees Celsius. Measurement resolution is 0.5 degrees C.

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

Fan rotation speeds are reported in RPM (rotations per minute).

Usage Note

Limit register locations on Intel boards with EC firmware version 1.0 build date 04/03/13 do not match the register locations in the Nuvoton datasheet. Nuvoton confirms that Intel uses a special firmware version with different register addresses. The specification describing the Intel firmware is held under NDA by Nuvoton and Intel and not available to the public.

Some of the register locations can be reverse engineered; others are too well hidden. Given this, writing any values from the operating system is considered too risky with this firmware and has been disabled. All limits must all be written from the BIOS.

The driver has only been tested with the Intel firmware, and by default only instantiates on Intel boards. To enable it on non-Intel boards, set the 'force' module parameter to 1.

Tested Boards and Firmware Versions

The driver has been reported to work with the following boards and firmware versions.

Board	Firmware version
Intel DH87RL	NCT6683D EC firmware version 1.0 build 04/03/13
Intel DH87MC	NCT6683D EC firmware version 1.0 build 04/03/13
Intel DB85FL	NCT6683D EC firmware version 1.0 build 04/03/13
ASRock X570	NCT6683D EC firmware version 1.0 build 06/28/19
MSI B550	NCT6687D EC firmware version 1.0 build 05/07/20