Kernel driver lm77

Supported chips:

- National Semiconductor LM77

  Prefix: 'lm77'

  Addresses scanned: I2C 0x48 - 0x4b

  Datasheet: Publicly available at the National Semiconductor website

  http://www.national.com/

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Description

The LM77 implements one temperature sensor. The temperature sensor incorporates a band-gap type temperature sensor, 10-bit ADC, and a digital comparator with user-programmable upper and lower limit values.

The LM77 implements 3 limits: low (temp1_min), high (temp1_max) and critical (temp1_crit.) It also implements an hysteresis mechanism which applies to all 3 limits. The relative difference is stored in a single register on the chip, which means that the relative difference between the limit and its hysteresis is always the same for all 3 limits.

This implementation detail implies the following:

- When setting a limit, its hysteresis will automatically follow, the difference staying unchanged. For example, if the old critical limit was 80 degrees C, and the hysteresis was 75 degrees C, and you change the critical limit to 90 degrees C, then the hysteresis will automatically change to 85 degrees C.
- All 3 hysteresis can't be set independently. We decided to make temp1_crit_hyst writable, while temp1_min_hyst and temp1_max_hyst are read-only. Setting temp1_crit_hyst writes the difference between temp1_crit_hyst and temp1_crit into the chip, and the same relative hysteresis applies automatically to the low and high limits.
- The limits should be set before the hysteresis.