Kernel driver g762

The GMT G762 Fan Speed PWM Controller is connected directly to a fan and performs closed-loop or open-loop control of the fan speed. Two modes - PWM or DC - are supported by the device.

For additional information, a detailed datasheet is available at http://natisbad.org/NAS/ref/GMT_EDS-762_763-080710-0.2.pdf. sysfs bindings are described in Documentation/hwmon/sysfs-interface.rst.

The following entries are available to the user in a subdirectory of /sys/bus/i2c/drivers/g762/ to control the operation of the device. This can be done manually using the following entries but is usually done via a userland daemon like fancontrol.

Note that those entries do not provide ways to setup the specific hardware characteristics of the system (reference clock, pulses per fan revolution, ...); Those can be modified via devicetree bindings documented in Documentation/devicetree/bindings/hwmon/g762.txt or using a specific platform_data structure in board initialization file (see include/linux/platform_data/g762.h).

fan1_target:
: set desired fan speed. This only makes sense in closed-loop fan speed control (i.e. when pwm1_enable is set to 2).

fan1_input:
: provide current fan rotation value in RPM as reported by the fan to the device.

fan1_div:
: fan clock divisor. Supported value are 1, 2, 4 and 8.

fan1_pulses:
: number of pulses per fan revolution. Supported values are 2 and 4.

fan1_fault:
: reports fan failure, i.e. no transition on fan gear pin for about 0.7s (if the fan is not voluntarily set off).

fan1_alarm:
: in closed-loop control mode, if fan RPM value is 25% out of the programmed value for over 6 seconds 'fan1_alarm' is set to 1.

pwm1_enable:
: set current fan speed control mode i.e. 1 for manual fan speed control (open-loop) via pwm1 described below, 2 for automatic fan speed control (closed-loop) via fan1_target above.

pwm1_mode:
: set or get fan driving mode: 1 for PWM mode, 0 for DC mode.

pwm1:
: get or set PWM fan control value in open-loop mode. This is an integer value between 0 and 255. 0 stops the fan, 255 makes it run at full speed.

Both in PWM mode ('pwm1_mode' set to 1) and DC mode ('pwm1_mode' set to 0), when current fan speed control mode is open-loop ('pwm1_enable' set to 1), the fan speed is programmed by setting a value between 0 and 255 via 'pwm1' entry (0 stops the fan, 255 makes it run at full speed). In closed-loop mode ('pwm1_enable' set to 2), the expected rotation speed in RPM can be passed to the chip via 'fan1_target'. In closed-loop mode, the target speed is compared with current speed (available via 'fan1_input') by the device and a feedback is performed to match that target value. The fan speed value is computed based on the parameters associated with the physical characteristics of the system: a reference clock source frequency, a number of pulses per fan revolution, etc.

Note that the driver will update its values at most once per second.