NAME

lm75 - lm75 i2c digital temperature sensor driver

SYNOPSIS

device iic
device iicbus
device lm75

DESCRIPTION

The **lm75** driver provides access to sensor data and configuration over the iicbus(4).

It provides an easy and simple way to check the functionality of an i2c bus as it provides read and write access to the **lm75** configuration register.

The access to **lm75** data is made via the sysctl(8) interface:

dev.lm75.0.%desc: LM75 temperature sensor
dev.lm75.0.%driver: lm75
dev.lm75.0.%location: addr=0x49
dev.lm75.0.%pnpinfo: name=lm750 compat=national,lm75
dev.lm75.0.%parent: iicbus3
dev.lm75.0.temperature: 27.1C
dev.lm75.0.thyst: 75.0C
dev.lm75.0.tos: 80.0C
dev.lm75.0.faults: 1
dev.lm75.0.mode: comparator
dev.lm75.0.polarity: active-low
dev.lm75.0.shutdown: 0

dev.lm75.%d.temperature Is the read-only value of the current temperature read by the sensor.

dev.lm75.%d.thyst Sets the hysteresis temperature. Once the temperature gets over the overtemperature shutdown value (tos) it needs to drop below the hysteresis temperature to disable the output (interrupt) pin again.

dev.lm75.%d.tos Sets the overtemperature shutdown value. Once the temperature gets over this value the output pin will be enabled. The way the output (interrupt) pin works, depends on the mode configuration.

dev.lm75.%d.faults Is the number of faults that must occur consecutively to activate the interrupt

(output) pin. It can be set to 1, 2, 4, and 6.

dev.lm75.%d.mode Sets the operation mode for the sensor interrupt pin. It can be set to 'comparator' (default) or 'interrupt'.

dev.lm75.%d.polarity Sets the polarity of the sensor interrupt pin. It can be set to 'active-low' (default) or 'active-high'. Please note that the output pin is an open-drain output and it needs a proper pull-up resistor to work.

dev.lm75.%d.shutdown When set to '1' it shuts down the sensor. The temperature conversion stops but the sensor remains with its i2c bus active, i.e., it can be woken up by setting this option to '0' again.

Please check the **lm75** datasheet for more details.

When used together with snmp_lm75(3) it allows the monitoring of **lm75** temperature data over SNMP.

The **lm75** driver supports both the low and the high resolution models.

The low resolution model (lm75) provides a 9 bit output with the LSB representing 0.5C.

The high resolution model (lm75a) provides an 11 bit output with the LSB representing 0.125C.

The driver tries to auto-detect the **lm75** model, but the detection of some **lm75** clones may not work reliably.

On a device.hints(5) based system, such as MIPS, these values are configurable for **lm75**:

hint.lm75.%d.at Is the iicbus(4) you are attaching to.

hint.lm75.%d.addr Is the **lm75** i2c address on the iicbus(4).

On a FDT(4) based system, such as ARM, the DTS part for a **lm75** device usually looks like:

```
i2c {
        /* Properties describing the controller appear here. */
        ...
        lm750@49 {
                compatible = "national,lm75";
                reg = <0x49>;
```

```
        };
};
```

Where:

compatible Should always be set to "national,lm75".

reg Indicates which 7-bit i2c address the **lm75** is wired at. **lm75** temperature sensors can be wired to 8 different addresses, allowing up to 8 sensors on the same iicbus(4).

SEE ALSO

snmp_lm75(3), fdt(4), iic(4), iicbus(4), sysctl(8)

HISTORY

The **lm75** driver first appeared in FreeBSD 11.0.

AUTHORS

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