

# Kernel driver w1\_ds28e17

Supported chips:

- Maxim DS28E17 1-Wire-to-I2C Master Bridge

supported family codes:

W1_FAMILY_DS28E17	0x19
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## Description

The DS28E17 is a Onewire slave device which acts as an I2C bus master.

This driver creates a new I2C bus for any DS28E17 device detected. I2C buses come and go as the DS28E17 devices come and go. I2C slave devices connected to a DS28E17 can be accessed by the kernel or userspace tools as if they were connected to a "native" I2C bus master.

An udev rule like the following:

```
SUBSYSTEM=="i2c-dev", KERNEL=="i2c-[0-9]*", ATTRS{name}=="w1-19-*", \
    SYMLINK+="i2c-${attr{name}}"
```

may be used to create stable /dev/i2c- entries based on the unique id of the DS28E17 chip.

Driver parameters are:

speed:

This sets up the default I2C speed a DS28E17 get configured for as soon it is connected. The power-on default of the DS28E17 is 400kBaud, but chips may come and go on the Onewire bus without being de-powered and as soon the "w1\_ds28e17" driver notices a freshly connected, or reconnected DS28E17 device on the Onewire bus, it will re-apply this setting.

Valid values are 100, 400, 900 [kBaud]. Any other value means to leave alone the current DS28E17 setting on detect. The default value is 100.

stretch:

This sets up the default stretch value used for freshly connected DS28E17 devices. It is a multiplier used on the calculation of the busy wait time for an I2C transfer. This is to account for I2C slave devices which make heavy use of the I2C clock stretching feature and thus, the needed timeout cannot be pre-calculated correctly. As the w1\_ds28e17 driver checks the DS28E17's busy flag in a loop after the precalculated wait time, it should be hardly needed to tweak this setting.

Leave it at 1 unless you get ETIMEDOUT errors and a "w1\_slave\_driver 19-00000002dbd8: busy timeout" in the kernel log.

Valid values are 1 to 9. The default is 1.

The driver creates sysfs files /sys/bus/w1/devices/19-<id>/speed and /sys/bus/w1/devices/19-<id>/stretch for each device, preloaded with the default settings from the driver parameters. They may be changed anytime. In addition a directory /sys/bus/w1/devices/19-<id>/i2c-<nnn> for the I2C bus master sysfs structure is created.

See [https://github.com/janka/w1\\_ds28e17](https://github.com/janka/w1_ds28e17) for even more information.