Kernel driver max34440

Supported chips:

- Maxim MAX34440

  Prefixes: 'max34440'

  Addresses scanned: -

  Datasheet: https://datasheets.maximintegrated.com/en/ds/MAX34440.pdf
- Maxim MAX34441

  PMBus 5-Channel Power-Supply Manager and Intelligent Fan Controller

  Prefixes: 'max34441'

  Addresses scanned: -

  Datasheet: https://datasheets.maximintegrated.com/en/ds/MAX34441.pdf
- Maxim MAX34446

  PMBus Power-Supply Data Logger

  Prefixes: 'max34446'

  Addresses scanned: -

  Datasheet: https://datasheets.maximintegrated.com/en/ds/MAX34446.pdf
- Maxim MAX34451

  PMBus 16-Channel V/I Monitor and 12-Channel Sequencer/Marginer

  Prefixes: 'max34451'

  Addresses scanned: -

  Datasheet: https://datasheets.maximintegrated.com/en/ds/MAX34451.pdf
- Maxim MAX34460

  PMBus 12-Channel Voltage Monitor & Sequencer

  Prefix: 'max34460'

  Addresses scanned: -

  Datasheet: https://datasheets.maximintegrated.com/en/ds/MAX34460.pdf
- Maxim MAX34461

  PMBus 16-Channel Voltage Monitor & Sequencer

  Prefix: 'max34461'

  Addresses scanned: -

  Datasheet: https://datasheets.maximintegrated.com/en/ds/MAX34461.pdf

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Description

This driver supports hardware monitoring for Maxim MAX34440 PMBus 6-Channel Power-Supply Manager, MAX34441 PMBus 5-Channel Power-Supply Manager and Intelligent Fan Controller, and MAX34446 PMBus Power-Supply Data Logger. It also supports the MAX34451, MAX34460, and MAX34461 PMBus Voltage Monitor & Sequencers. The MAX34451 supports monitoring voltage or current of 12 channels based on GIN pins. The MAX34460 supports 12 voltage channels, and the MAX34461 supports 16 voltage channels.

The driver is a client driver to the core PMBus driver. Please see Documentation/hwmon/pmbus.rst for details on PMBus client drivers.

Usage Notes

This driver does not auto-detect devices. You will have to instantiate the devices explicitly. Please see Documentation/i2c/instantiating-devices.rst for details.

For MAX34446, the value of the currX_crit attribute determines if current or voltage measurement is enabled for a given channel.

Voltage measurement is enabled if currX_crit is set to 0; current measurement is enabled if the attribute is set to a positive value. Power measurement is only enabled if channel 1 (3) is configured for voltage measurement, and channel 2 (4) is configured for current measurement.

Platform data support

The driver supports standard PMBus driver platform data.

Sysfs entries

The following attributes are supported. Limits are read-write; all other attributes are read-only.

In

in[1-6]_label	"vout[1-6]".
in[1-6]_input	Measured voltage. From READ_VOUT register.
in[1-6]_min	Minimum Voltage. From VOUT_UV_WARN_LIMIT register.
in[1-6]_max	Maximum voltage. From VOUT_OV_WARN_LIMIT register.
in[1-6]_lcrit	Critical minimum Voltage. VOUT_UV_FAULT_LIMIT register.
in[1-6]_crit	Critical maximum voltage. From VOUT_OV_FAULT_LIMIT register.
in[1-6]_min_alarm	Voltage low alarm. From VOLTAGE_UV_WARNING status.
in[1-6]_max_alarm	Voltage high alarm. From VOLTAGE_OV_WARNING status.
in[1-6]_lcrit_alarm	Voltage critical low alarm. From VOLTAGE_UV_FAULT status.
in[1-6]_crit_alarm	Voltage critical high alarm. From VOLTAGE_OV_FAULT status.
in[1-6]_lowest	Historical minimum voltage.
in[1-6]_highest	Historical maximum voltage.
in[1-6]_reset_history	Write any value to reset history.

> **Note**
>
> MAX34446 only supports in[1-4].

Curr

curr[1-6]_label	"iout[1-6]".
curr[1-6]_input	Measured current. From READ_IOUT register.
curr[1-6]_max	Maximum current. From IOUT_OC_WARN_LIMIT register.
curr[1-6]_crit	Critical maximum current. From IOUT_OC_FAULT_LIMIT register.
curr[1-6]_max_alarm	Current high alarm. From IOUT_OC_WARNING status.
curr[1-6]_crit_alarm	Current critical high alarm. From IOUT_OC_FAULT status.
curr[1-4]_average	Historical average current (MAX34446/34451 only).
curr[1-6]_highest	Historical maximum current.
curr[1-6]_reset_history	Write any value to reset history.

> **Note**
>
> - in6 and curr6 attributes only exist for MAX34440.
> - MAX34446 only supports curr[1-4].

Power

power[1,3]_label	"pout[1,3]"
power[1,3]_input	Measured power.
power[1,3]_average	Historical average power.
power[1,3]_highest	Historical maximum power.

> **Note**
>
> Power attributes only exist for MAX34446.

Temp

temp[1-8]_input	Measured temperatures. From READ_TEMPERATURE_1 register. temp1 is the chip's internal temperature. temp2..temp5 are remote I2C temperature sensors. For MAX34441, temp6 is a remote thermal-diode sensor. For MAX34440, temp6..8 are remote I2C temperature sensors.
temp[1-8]_max	Maximum temperature. From OT_WARN_LIMIT register.
temp[1-8]_crit	Critical high temperature. From OT_FAULT_LIMIT register.
temp[1-8]_max_alarm	Temperature high alarm.
temp[1-8]_crit_alarm	Temperature critical high alarm.
temp[1-8]_average	Historical average temperature (MAX34446 only).
temp[1-8]_highest	Historical maximum temperature.
temp[1-8]_reset_history	Write any value to reset history.

Note

- temp7 and temp8 attributes only exist for MAX34440.
- MAX34446 only supports temp[1-3].

Note

- MAX34451 supports attribute groups in[1-16] (or curr[1-16] based on input pins) and temp[1-5].
- MAX34460 supports attribute groups in[1-12] and temp[1-5].
- MAX34461 supports attribute groups in[1-16] and temp[1-5].