

# Kernel driver mp2975

Supported chips:

- MPS MP12254

Prefix: 'mp2975'

Author:

Vadim Pasternak <[vadimp@nvidia.com](mailto:vadimp@nvidia.com)>

## Description

This driver implements support for Monolithic Power Systems, Inc. (MPS) vendor dual-loop, digital, multi-phase controller MP2975.

This device:

- Supports up to two power rail.
- Provides 8 pulse-width modulations (PWMs), and can be configured up to 8-phase operation for rail 1 and up to 4-phase operation for rail 2.
- Supports two pages 0 and 1 for telemetry and also pages 2 and 3 for configuration.
- Can configured VOUT readout in direct or VID format and allows setting of different formats on rails 1 and 2. For VID the following protocols are available: VR13 mode with 5-mV DAC; VR13 mode with 10-mV DAC, IMVP9 mode with 5-mV DAC.

Device supports:

- SVID interface.
- AVSBus interface.

Device complaint with:

- PMBus rev 1.3 interface.

Device supports direct format for reading output current, output voltage, input and output power and temperature. Device supports linear format for reading input voltage and input power. Device supports VID and direct formats for reading output voltage. The below VID modes are supported: VR12, VR13, IMVP9.

The driver provides the next attributes for the current:

- for current in: input, maximum alarm;
- for current out input, maximum alarm and highest values;
- for phase current: input and label. attributes.

The driver exports the following attributes via the 'sysfs' files, where

- 'n' is number of telemetry pages (from 1 to 2);
- 'k' is number of configured phases (from 1 to 8);
- indexes 1, 1\*n for "iin";
- indexes n+1, n+2 for "iout";
- indexes 2\*n+1 ... 2\*n+k for phases.

**curr[1-{2n}]\_alarm**

**curr[{n+1}-{n+2}]\_highest**

**curr[1-{2n+k}]\_input**

**curr[1-{2n+k}]\_label**

The driver provides the next attributes for the voltage:

- for voltage in: input, high critical threshold, high critical alarm, all only from page 0;
- for voltage out: input, low and high critical thresholds, low and high critical alarms, from pages 0 and 1;

The driver exports the following attributes via the 'sysfs' files, where

- 'n' is number of telemetry pages (from 1 to 2);
- indexes 1 for "iin";
- indexes n+1, n+2 for "vout";

**in[1-{2n+1}]\_crit**

**in[1-{2n+1}]\_crit\_alarm**

**in[1- $\{2n+1\}$ ].\_input**

**in[1- $\{2n+1\}$ ].\_label**

**in[2- $\{n+1\}$ ].\_lcrit**

**in[2- $\{n+1\}$ 1].\_lcrit\_alarm**

The driver provides the next attributes for the power:

- for power in alarm and input.
- for power out: highest and input.

The driver exports the following attributes via the 'sysfs' files, where

- 'n' is number of telemetry pages (from 1 to 2);
- indexes 1 for "pin";
- indexes  $n+1$ ,  $n+2$  for "pout";

**power1\_alarm**

**power[2- $\{n+1\}$ ].\_highest**

**power[1- $\{2n+1\}$ ].\_input**

**power[1- $\{2n+1\}$ ].\_label**

The driver provides the next attributes for the temperature (only from page 0):

**temp1\_crit**

**temp1\_crit\_alarm**

**temp1\_input**

**temp1\_max**

**temp1\_max\_alarm**