Kernel driver isl68137

Supported chips:

- Renesas ISL68137

  Prefix: 'isl68137'

  Addresses scanned: -

  Datasheet:

  Publicly available at the Renesas website
  https://www.renesas.com/us/en/www/doc/datasheet/isl68137.pdf

- Renesas ISL68220

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  Publicly available (after August 2020 launch) at the Renesas website

- Renesas ISL68221

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- Renesas ISL68222

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- Renesas ISL68223

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- Renesas ISL68226

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Publicly available (after August 2020 launch) at the Renesas website

- Renesas ISL68227
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  Publicly available (after August 2020 launch) at the Renesas website

- Renesas ISL68229
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- Renesas ISL68233
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- Renesas ISL69225
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- Renesas ISL69227
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  Publicly available (after August 2020 launch) at the Renesas website
- Renesas ISL69228
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- Renesas ISL69247
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- Renesas ISL69248
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- Renesas ISL69254

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  Publicly available (after August 2020 launch) at the Renesas website

- Renesas ISL69260

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  Publicly available (after August 2020 launch) at the Renesas website

- Renesas ISL69268

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  Publicly available (after August 2020 launch) at the Renesas website

- Renesas ISL69269

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- Renesas ISL69298

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Publicly available (after August 2020 launch) at the Renesas website

- Renesas RAA228000

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  Addresses scanned: -

  Datasheet:

  Publicly available (after August 2020 launch) at the Renesas website

- Renesas RAA228004

  Prefix: 'raa228004'

  Addresses scanned: -

  Datasheet:

  Publicly available (after August 2020 launch) at the Renesas website

- Renesas RAA228006

  Prefix: 'raa228006'

  Addresses scanned: -

  Datasheet:

  Publicly available (after August 2020 launch) at the Renesas website

- Renesas RAA228228

  Prefix: 'raa228228'

  Addresses scanned: -

  Datasheet:

  Publicly available (after August 2020 launch) at the Renesas website

- Renesas RAA229001

  Prefix: 'raa229001'

  Addresses scanned: -

  Datasheet:

  Publicly available (after August 2020 launch) at the Renesas website

- Renesas RAA229004

  Prefix: 'raa229004'

  Addresses scanned: -

  Datasheet:

  Publicly available (after August 2020 launch) at the Renesas website

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Description

This driver supports the Renesas ISL68137 and all 2nd generation Renesas digital multiphase voltage regulators (raa_dmpvr2). The ISL68137 is a digital output 7-phase configurable PWM controller with an AVSBus interface. 2nd generation devices are grouped into 4 distinct configurations: '1rail' for single-rail devices, '2rail' for dual-rail devices, '3rail' for 3-rail devices, and 'hv' for high voltage single-rail devices. Consult the individual datasheets for more information.

Usage Notes

This driver does not probe for PMBus devices. You will have to instantiate devices explicitly.

The ISL68137 AVS operation mode must be enabled/disabled at runtime.

Beyond the normal sysfs pmbus attributes, the driver exposes a control attribute for the ISL68137.

For 2nd generation Renesas digital multiphase voltage regulators, only the normal sysfs pmbus attributes are supported.

ISL68137 sysfs attributes

avs(0|1)_enable	Controls the AVS state of each rail.
curr1_label	"iin"
curr1_input	Measured input current
curr1_crit	Critical maximum current
curr1_crit_alarm	Current critical high alarm
curr[2-3]_label	"iout[1-2]"
curr[2-3]_input	Measured output current
curr[2-3]_crit	Critical maximum current
curr[2-3]_crit_alarm	Current critical high alarm
in1_label	"vin"
in1_input	Measured input voltage
in1_lcrit	Critical minimum input voltage
in1_lcrit_alarm	Input voltage critical low alarm
in1_crit	Critical maximum input voltage
in1_crit_alarm	Input voltage critical high alarm
in[2-3]_label	"vout[1-2]"
in[2-3]_input	Measured output voltage
in[2-3]_lcrit	Critical minimum output voltage
in[2-3]_lcrit_alarm	Output voltage critical low alarm
in[2-3]_crit	Critical maximum output voltage
in[2-3]_crit_alarm	Output voltage critical high alarm
power1_label	"pin"
power1_input	Measured input power
power1_alarm	Input power high alarm
power[2-3]_label	"pout[1-2]"
power[2-3]_input	Measured output power
temp[1-3]_input	Measured temperature
temp[1-3]_crit	Critical high temperature
temp[1-3]_crit_alarm	Chip temperature critical high alarm
temp[1-3]_max	Maximum temperature
temp[1-3]_max_alarm	Chip temperature high alarm

raa_dmpvr2_1rail/hv sysfs attributes

curr1_label	"iin"
curr1_input	Measured input current
curr1_crit	Critical maximum current
curr1_crit_alarm	Current critical high alarm
curr2_label	"iout"
curr2_input	Measured output current
curr2_crit	Critical maximum current
curr2_crit_alarm	Current critical high alarm
in1_label	"vin"
in1_input	Measured input voltage
in1_lcrit	Critical minimum input voltage
in1_lcrit_alarm	Input voltage critical low alarm
in1_crit	Critical maximum input voltage
in1_crit_alarm	Input voltage critical high alarm
in2_label	"vmon"
in2_input	Scaled VMON voltage read from the VMON pin
in3_label	"vout"
in3_input	Measured output voltage
in3_lcrit	Critical minimum output voltage

in3_lcrit_alarm	Output voltage critical low alarm
in3_crit	Critical maximum output voltage
in3_crit_alarm	Output voltage critical high alarm
power1_label	"pin"
power1_input	Measured input power
power1_alarm	Input power high alarm
power2_label	"pout"
power2_input	Measured output power
temp[1-3]_input	Measured temperature
temp[1-3]_crit	Critical high temperature
temp[1-3]_crit_alarm	Chip temperature critical high alarm
temp[1-3]_max	Maximum temperature
temp[1-3]_max_alarm	Chip temperature high alarm

raa_dmpvr2_2rail sysfs attributes

curr[1-2]_label	"iin[1-2]"
curr[1-2]_input	Measured input current
curr[1-2]_crit	Critical maximum current
curr[1-2]_crit_alarm	Current critical high alarm
curr[3-4]_label	"iout[1-2]"
curr[3-4]_input	Measured output current
curr[3-4]_crit	Critical maximum current
curr[3-4]_crit_alarm	Current critical high alarm
in1_label	"vin"
in1_input	Measured input voltage
in1_lcrit	Critical minimum input voltage
in1_lcrit_alarm	Input voltage critical low alarm
in1_crit	Critical maximum input voltage
in1_crit_alarm	Input voltage critical high alarm
in2_label	"vmon"
in2_input	Scaled VMON voltage read from the VMON pin
in[3-4]_label	"vout[1-2]"
in[3-4]_input	Measured output voltage
in[3-4]_lcrit	Critical minimum output voltage
in[3-4]_lcrit_alarm	Output voltage critical low alarm
in[3-4]_crit	Critical maximum output voltage
in[3-4]_crit_alarm	Output voltage critical high alarm
power[1-2]_label	"pin[1-2]"
power[1-2]_input	Measured input power
power[1-2]_alarm	Input power high alarm
power[3-4]_label	"pout[1-2]"
power[3-4]_input	Measured output power
temp[1-5]_input	Measured temperature
temp[1-5]_crit	Critical high temperature
temp[1-5]_crit_alarm	Chip temperature critical high alarm
temp[1-5]_max	Maximum temperature
temp[1-5]_max_alarm	Chip temperature high alarm

raa_dmpvr2_3rail sysfs attributes

curr[1-3]_label	"iin[1-3]"
curr[1-3]_input	Measured input current
curr[1-3]_crit	Critical maximum current
curr[1-3]_crit_alarm	Current critical high alarm
curr[4-6]_label	"iout[1-3]"
curr[4-6]_input	Measured output current
curr[4-6]_crit	Critical maximum current
curr[4-6]_crit_alarm	Current critical high alarm
in1_label	"vin"
in1_input	Measured input voltage

in1_lcrit	Critical minimum input voltage
in1_lcrit_alarm	Input voltage critical low alarm
in1_crit	Critical maximum input voltage
in1_crit_alarm	Input voltage critical high alarm
in2_label	"vmon"
in2_input	Scaled VMON voltage read from the VMON pin
in[3-5]_label	"vout[1-3]"
in[3-5]_input	Measured output voltage
in[3-5]_lcrit	Critical minimum output voltage
in[3-5]_lcrit_alarm	Output voltage critical low alarm
in[3-5]_crit	Critical maximum output voltage
in[3-5]_crit_alarm	Output voltage critical high alarm
power[1-3]_label	"pin[1-3]"
power[1-3]_input	Measured input power
power[1-3]_alarm	Input power high alarm
power[4-6]_label	"pout[1-3]"
power[4-6]_input	Measured output power
temp[1-7]_input	Measured temperature
temp[1-7]_crit	Critical high temperature
temp[1-7]_crit_alarm	Chip temperature critical high alarm
temp[1-7]_max	Maximum temperature
temp[1-7]_max_alarm	Chip temperature high alarm