Kernel drivers ltc2947-i2c and ltc2947-spi

Supported chips:

Analog Devices LTC2947

Prefix: 'ltc2947'

Addresses scanned: -

Datasheet:

https://www.analog.com/media/en/technical-documentation/data-sheets/LTC2947.pdf

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Description

The LTC2947 is a high precision power and energy monitor that measures current, voltage, power, temperature, charge and energy. The device supports both SPI and I2C depending on the chip configuration. The device also measures accumulated quantities as energy. It has two banks of register's to read/set energy related values. These banks can be configured independently to have setups like: energy1 accumulates always and enrgy2 only accumulates if current is positive (to check battery charging efficiency for example). The device also supports a GPIO pin that can be configured as output to control a fan as a function of measured temperature. Then, the GPIO becomes active as soon as a temperature reading is higher than a defined threshold. The temp2 channel is used to control this thresholds and to read the respective alarms.

Sysfs entries

The following attributes are supported. Limits are read-write, reset history is write-only and all the other attributes are read-only.

in0_min	in0_input	VP-VM voltage (mV).
in0 lowest	in0_min	Undervoltage threshold
in0 highest Highest measured voltage in0 reset_history Write 1 to reset in1 history in0 min_alarm Undervoltage alarm in0 max_alarm Overvoltage alarm in0 max_alarm Overvoltage alarm in0 label Channel label (VP-VM) in1 min Undervoltage threshold in1 max Overvoltage threshold in1 lowest Lowest measured voltage in1 highest Highest measured voltage in1 min_alarm Undervoltage alarm in1 max_alarm Overvoltage alarm in1 max_alarm Overvoltage alarm in1 max_alarm Overvoltage alarm in1 label Channel label (DVCC) curr1_input IP-IM Sense current (mA) curr1_min Undercurrent threshold curr1_lowest Lowest measured current curr1_highest Highest measured current curr1_reset_history Write 1 to reset curr1 history curr1_min_alarm Undercurrent alarm Curr1_max_alarm Overcurrent alarm Curr1_max_alarm Overcurrent alarm curr1_max_alarm Overcurrent alarm Curr1_max_alarm Overcurrent alarm Curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_max High power threshold Historical minimum power use power1_reset_history Write 1 to reset power1 history	in0_max	Overvoltage threshold
in0_reset_history	in0_lowest	Lowest measured voltage
in0 min alarm in0 max alarm Overvoltage alarm in0 max alarm Overvoltage alarm in0 label Channel label (VP-VM) in1 input DVCC voltage (mV) in1 min Undervoltage threshold in1 max Overvoltage threshold in1 lowest Lowest measured voltage in1 highest Highest measured voltage in1 min alarm Undervoltage alarm in1 max alarm Overvoltage alarm in1 label Channel label (DVCC) curr1 input IP-IM Sense current (mA) curr1 min Undercurrent threshold curr1 lowest Lowest measured current curr1 lighest Highest measured current curr1 reset history Write 1 to reset curr1 history curr1 min alarm Undercurrent alarm curr1 max alarm Overcurrent alarm curr1 max alarm Channel label (IP-IM) power1 input Power (in uW) power1 max High power threshold power1 reset history Write 1 to reset power1 history Undercurrent max High power use	in0_highest	Highest measured voltage
in0_max_alarm in0_label Channel label (VP-VM) in1_input DVCC voltage (mV) in1_min Undervoltage threshold in1_lowest Lowest measured voltage in1_highest Highest measured voltage in1_min_alarm Undervoltage alarm in1_max_alarm Overvoltage alarm in1_label Channel label (DVCC) curr1_input IP-IM Sense current (mA) curr1_min Undercurrent threshold curr1_lowest Lowest measured current curr1_lowest Lowest measured current curr1_lighest Highest measured current curr1_reset_history Write 1 to reset curr1 history curr1_min_alarm Undercurrent alarm curr1_min_alarm Overcurrent alarm curr1_max_alarm Overcurrent alarm curr1_max_alarm Overcurrent alarm curr1_max_alarm Overcurrent alarm curr1_max_alarm Overcurrent alarm curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_input_lowest Historical maximum power use power1_reset_history Write 1 to reset power1 history		Write 1 to reset in1 history
in0_label	in0_min_alarm	Undervoltage alarm
in1_input	in0_max_alarm	Overvoltage alarm
in1_min Undervoltage threshold in1_max Overvoltage threshold in1_lowest Lowest measured voltage in1_highest Highest measured voltage in1_reset_history Write 1 to reset in2 history in1_min_alarm Undervoltage alarm in1_max_alarm Overvoltage alarm in1_label Channel label (DVCC) cur1_input IP-IM Sense current (mA) cur1_min Undercurrent threshold cur1_max Overcurrent threshold cur1_lowest Lowest measured current cur1_highest Highest measured current cur1_reset_history Write 1 to reset curr1 history cur1_min_alarm Undercurrent alarm cur1_max_alarm Overcurrent alarm cur1_max_alarm Overcurrent alarm cur1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_input_lowest Historical minimum power use power1_reset_history Write 1 to reset power1 history Write 1 to reset power1 history Write 1 to reset power1 history	in0_label	Channel label (VP-VM)
inl_max	in1_input	DVCC voltage (mV)
in1_lowest	in1_min	Undervoltage threshold
inl_highest Highest measured voltage inl_reset_history Write 1 to reset in2 history inl_min_alarm Undervoltage alarm inl_max_alarm Overvoltage alarm inl_label Channel label (DVCC) curr1_input IP-IM Sense current (mA) curr1_min Undercurrent threshold curr1_max Overcurrent threshold curr1_highest Lowest measured current curr1_highest Highest measured current curr1_reset_history Write 1 to reset curr1 history curr1_min_alarm Undercurrent alarm curr1_max_alarm Overcurrent alarm curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history Write 1 to reset power1 history	in1_max	Overvoltage threshold
in1_reset_history	in1_lowest	Lowest measured voltage
inl min alarm inl max alarm Overvoltage alarm inl label Channel label (DVCC) curr1 input IP-IM Sense current (mA) curr1 min Undercurrent threshold curr1 lowest curr1 lowest curr1 highest Highest measured current curr1 reset history curr1 min alarm curr1 max alarm curr1 max alarm curr1 max alarm curr1 max alarm curr1 label Channel label (IP-IM) power1 input power1 min Low power threshold power1 input lowest power1 input highest Historical minimum power use power1 reset history Write 1 to reset power1 history Write 1 to reset power1 history	in1_highest	Highest measured voltage
inl max alarm inl label Channel label (DVCC) curr1 input Undercurrent threshold curr1 max Overcurrent threshold curr1 lowest Lowest measured current curr1 highest Highest measured current curr1 reset history Write 1 to reset curr1 history curr1 max alarm curr1 max alarm Curr1 label Channel label (IP-IM) power1 input Power (in uW) power1 max High power threshold power1 input lowest power1 input highest Historical maximum power use power1 reset history Write 1 to reset power1 history	in1_reset_history	Write 1 to reset in 2 history
in1_label	in1_min_alarm	Undervoltage alarm
curr1_input IP-IM Sense current (mA) curr1_min Undercurrent threshold curr1_max Overcurrent threshold curr1_lowest Lowest measured current curr1_highest Highest measured current curr1_reset_history Write 1 to reset curr1 history curr1_min_alarm Undercurrent alarm curr1_max_alarm Overcurrent alarm curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	in1 max alarm	Overvoltage alarm
curr1_min Undercurrent threshold curr1_max Overcurrent threshold curr1_lowest Lowest measured current curr1_highest Highest measured current curr1_reset_history Write 1 to reset curr1 history curr1_min_alarm Undercurrent alarm curr1_max_alarm Overcurrent alarm curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_max High power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	in1_label	Channel label (DVCC)
curr1_max	curr1_input	IP-IM Sense current (mA)
curr1_lowest Lowest measured current curr1_highest Highest measured current curr1_reset_history Write 1 to reset curr1 history curr1_min_alarm Undercurrent alarm curr1_max_alarm Overcurrent alarm curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_max High power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	curr1_min	Undercurrent threshold
curr1_highest Highest measured current curr1_reset_history Write 1 to reset curr1 history curr1_min_alarm Undercurrent alarm curr1_max_alarm Overcurrent alarm curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_max High power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	curr1_max	Overcurrent threshold
curr1_reset_history Write 1 to reset curr1 history curr1_min_alarm Undercurrent alarm curr1_max_alarm Overcurrent alarm curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_max High power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	curr1_lowest	Lowest measured current
curr1_min_alarm	curr1_highest	Highest measured current
curr1_max_alarm Overcurrent alarm curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_max High power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	curr1_reset_history	Write 1 to reset curr1 history
curr1_label Channel label (IP-IM) power1_input Power (in uW) power1_min Low power threshold power1_max High power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	curr1_min_alarm	Undercurrent alarm
powerl_input Power (in uW) powerl_min Low power threshold powerl_max High power threshold powerl_input_lowest Historical minimum power use powerl_input_highest Historical maximum power use powerl_reset_history Write 1 to reset powerl history	curr1_max_alarm	Overcurrent alarm
power1_min	curr1_label	Channel label (IP-IM)
power1_max High power threshold power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	power1_input	Power (in uW)
power1_input_lowest Historical minimum power use power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	power1_min	Low power threshold
power1_input_highest Historical maximum power use power1_reset_history Write 1 to reset power1 history	power1_max	High power threshold
power1_reset_history Write 1 to reset power1 history	power1_input_lowest	Historical minimum power use
	powerl_input_highest	Historical maximum power use
nower1 min alarm Low power alarm		Write 1 to reset power1 history
Power Time and the power dentil	power1_min_alarm	Low power alarm

power1 max alarm	High power alarm
power1_label	Channel label (Power)
temp1_input	Chip Temperature (in milliC)
temp1_min	Low temperature threshold
temp1_max	High temperature threshold
temp1_input_lowest	Historical minimum temperature use
temp1_input_highest	Historical maximum temperature use
temp1_reset_history	Write 1 to reset temp1 history
temp1_min_alarm	Low temperature alarm
temp1_max_alarm	High temperature alarm
temp1_label	Channel label (Ambient)
temp2_min	Low temperature threshold for fan control
temp2_max	High temperature threshold for fan control
temp2_min_alarm	Low temperature fan control alarm
temp2_max_alarm	High temperature fan control alarm
temp2_label	Channel label (TEMPFAN)
energy1_input	Measured energy over time (in
	microJoule)
energy2_input	Measured energy over time (in
	microJoule)