## Interrupt handling and user space notification

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Asked 7 years, 4 months ago Active 10 months ago Viewed 9k times



I have several registered interrupts assigned to gpios, and application in user space. How to notify application about occurred interrupt and which interrupt there was?





Possibly fasync is applicable for this goal, but I can find examples how to send information from interrupt handler to user space application.



It will be good if you can present some useful examples.

Thanks in advance.

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asked Oct 8 '13 at 20:24

Yuri

999 • 2 • 12 • 25

Here's a coded example of the solution proposed by @eepp. – dinesh Oct 8 '13 at 21:30

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You don't need fancy kernel to userspace communication. A userspace application has access to GPIOs using Sysfs. Read about it in <a href="Documentation/gpio.txt">Documentation/gpio.txt</a>.



First, export a GPIO pin like this (the actual number depends on your setup):



# echo 23 > /sys/class/gpio/export

This will export GPIO pin #23, and thus create /sys/class/gpio/gpio23.

Set its direction:

# echo in > /sys/class/gpio/gpio23/direction

If the hardware GPIO controller supports interrupts generation, the driver should also support it and you will see /sys/class/gpio/gpio23/edge. Write either rising, falling or both to this file to indicate the signal edge(s) that will create a "userspace interrupt". Now, to get interrupted, use the poll(2) system call on /sys/class/gpio/gpio23/value. Then, when the poll call unblocks, read the new value (/sys/class/gpio/gpio23/value), which will be '0' or '1' (ASCII).

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answered Oct 8 '13 at 21:25

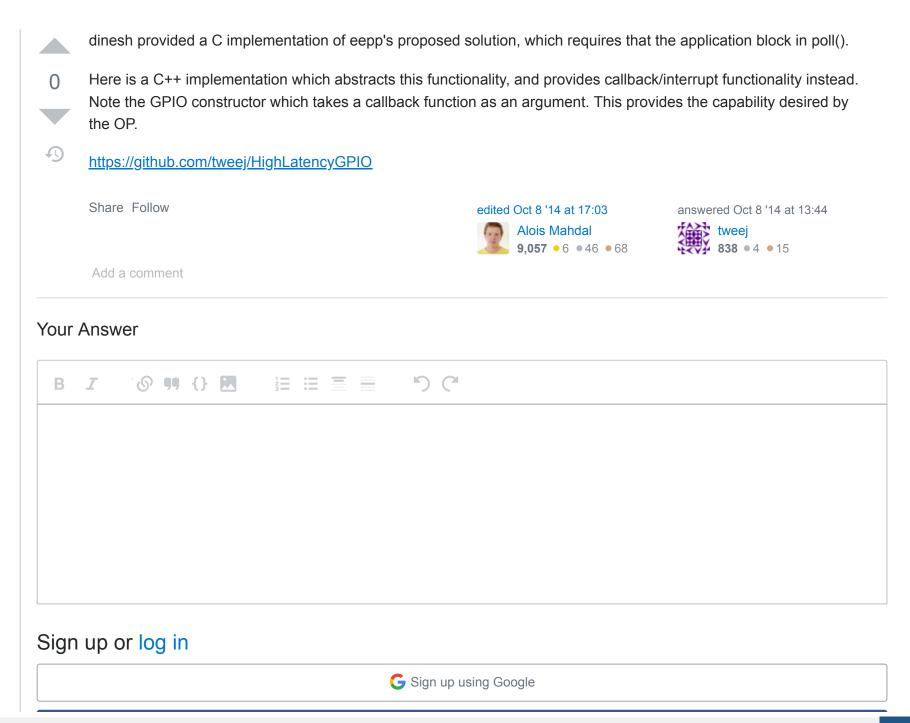


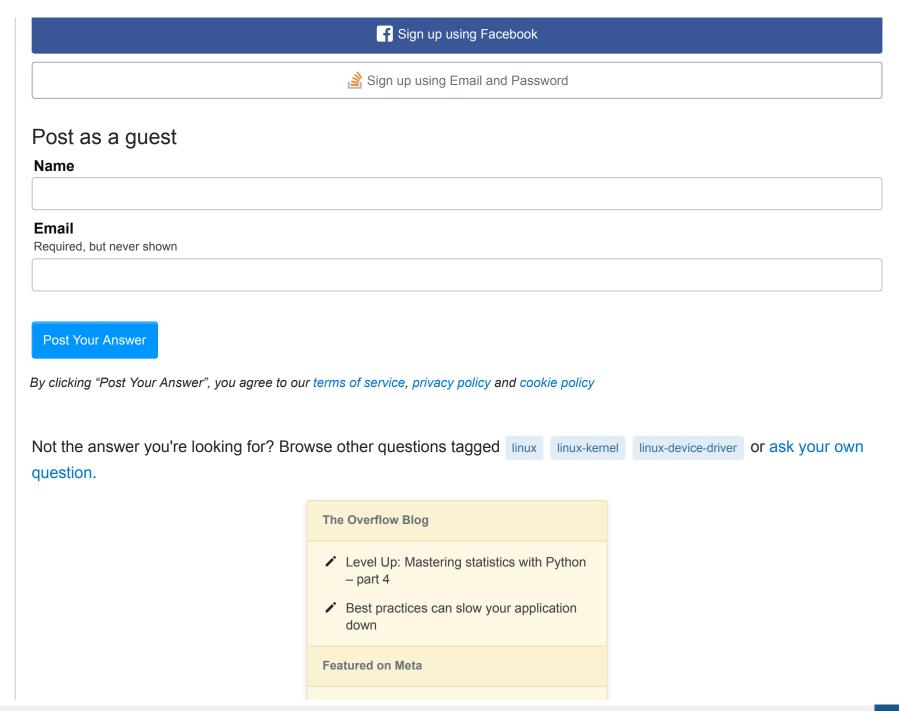
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The main my question is: How to send notification with information from interrupt handler to user space application. I am using not only gpio interrupts. So in userspace I need to determine which interrupt occurred. If it possible, please present some examples how it can be done. Thanks... – Yuri Oct 9 '13 at 7:30

In that case, you could do the same thing that GPIO does with poll(2) on a custom Sysfs entry for your driver. Otherwise, check out Netlink. – eepp Oct 9 '13 at 14:05

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