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Application Notes

GPIO Interrupt User Guide
Revision 0.1

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Revision history

Revision	Date	Owner	Changes
0.1	March 12, 2013	Larson Jiang	Draft

1. Overview

MX chip has totally 8 independent GPIO interrupt sources. You can set any GPIO pin as interrupt source for any one of those 8 interrupts.

This guide introduces how to setup GPIO interrupt.

2. Software Operation

2.1 Two steps to setup GPIO interrupt

init setting
- Set GPIO to input status
- Select GPIO interrupt number and set trigger mode

<Note>:
- Interrupt number: the number of 8 interrupt sources
- Trigger mode: GPIO_IRQ_LOW, GPIO_IRQ_HIGH, GPIO_IRQ_RISING and GPIO_IRQ_FALLING

register IRQ handler
- Same as other interrupt request, prepare your own irq_handler then do irq_request.

2.2 Interrupt setting relates functions' description

int32_t gpio_set_status(uint32_t pin,bool gpio_in)
Function: set GPIO to input/output status.
Argument:
- pin: GPIO pin number
- gpio_in: out/in status (gpio_status_in,gpio_status_out)

<Note>: GPIO pin number is defined in '\arch\arm\mach-meson6\include\mach\gpio_data.h'.

int32_t gpio_irq_set(int32_t pad, uint32_t irq/*GPIO_IRQ(irq,type)*/)
Function: set up GPIO interrupt
Argument:
- pad: GPIO pin number
- irq: setting value, must fill it with GPIO_IRQ(irq,type)

GPIO_IRQ(irq,type)
Function: assign interrupt trigger mode
Argument:
- irq: interrupt number of 8 sources
- type: trigger mode(GPIO_IRQ_LOW、 GPIO_IRQ_HIGH、 GPIO_IRQ_RISING、 GPIO_IRQ_FALLING)

3. Sample

3.1 Set GPIOX_11 to low level interrupt, select 3rd GPIO interrupt source

gpio_set_status(PAD_GPIOX_11,gpio_status_in); //set PAD_GPIOX_11 input status
gpio_irq_set(PAD_GPIOX_11,GPIO_IRQ(INT_GPIO_3-INT_GPIO_0,GPIO_IRQ_LOW));
request_irq(INT_GPIO_3, irq_handler,....); //'.....' same as other interrupt request.

<Note>: 'INT_GPIO_3' is defined in 'arch\arm\mach-meson6\include\mach\irq.h'.