GPIO Testing Driver

The GPIO Testing Driver (gpio-mockup) provides a way to create simulated GPIO chips for testing purposes. The lines exposed by these chips can be accessed using the standard GPIO character device interface as well as manipulated using the dedicated debugfs directory structure.

Creating simulated chips using module params

When loading the gpio-mockup driver a number of parameters can be passed to the module.

gpio_mockup_ranges

> This parameter takes an argument in the form of an array of integer pairs. Each pair defines the base GPIO number (non-negative integer) and the first number after the last of this chip. If the base GPIO is -1, the gpiolib will assign it automatically. while the following parameter is the number of lines exposed by the chip.
>
> Example: gpio_mockup_ranges=-1,8,-1,16,405,409
>
> The line above creates three chips. The first one will expose 8 lines, the second 16 and the third 4. The base GPIO for the third chip is set to 405 while for two first chips it will be assigned automatically.

gpio_mockup_named_lines

> This parameter doesn't take any arguments. It lets the driver know that GPIO lines exposed by it should be named.
>
> The name format is: gpio-mockup-X-Y where X is mockup chip's ID and Y is the line offset.

Manipulating simulated lines

Each mockup chip creates its own subdirectory in /sys/kernel/debug/gpio-mockup/. The directory is named after the chip's label. A symlink is also created, named after the chip's name, which points to the label directory.

Inside each subdirectory, there's a separate attribute for each GPIO line. The name of the attribute represents the line's offset in the chip.

Reading from a line attribute returns the current value. Writing to it (0 or 1) changes the configuration of the simulated pull-up/pull-down resistor (1 - pull-up, 0 - pull-down).