RTK Kernel for RTD1619

Agenda

- Wake Up from GPIO
- GPIO Configuration for Power Enable

Wake Up from GPIO - 1/2

- Modify device tree “rtk_iso_gpio” node
- Ex. rtd-16xx.dtsi

```
/*
* Suspend GPIO control
*
* [wakeup-gpio-list]
* <&rtk_iso_gpio 10 0 1>: <10> BT wakeup host pin; <0> input, <1> output; <0> internal pull low, <1> internal pull high;
* <&rtk_iso_gpio 26 0 1>: <26> WiFi wakeup host pin; <0> input, <1> output; <0> internal pull low, <1> internal pull high;
*
* [wakeup-gpio-enable]
* Wakeup from BT: <0> disable; <1> enable;
* Wakeup from WiFi: <0> disable; <1> enable;
*
* [wakeup-gpio-activity]
* BT pin: <0> active low; <1> active high;
* WIFI pin: <0> active low; <1> active high;
*/
```

Wake Up from GPIO - 2/2

```
rtk_iso_gpio: rtk_iso_gpio@98007100 {

    wakeup-gpio-list = <&rtk_iso_gpio 10 0 1>,<&rtk_iso_gpio 26 0 1>;
    wakeup-gpio-enable = <1>, <1>;
    wakeup-gpio-activity = <0>, <0>;

};
```

- Check GPIO wake-up configuration through sysfs
  - cat /sys/kernel/suspend/gpio_wakeup_en
  - cat /sys/kernel/suspend/gpio_wakeup_act

GPIO Configuration for Power Enable – 1/3

- Bind GPIOs in device tree

<&gpio_controler gpio_number direction value>

1. gpio_controler: rtk_iso_gpio
2. gpio_number: Pin number; iso gpio range: 0~85 , total 86 pins
3. direction: 0 as input, 1 as output
4. value:
   - input value, when direction 0

     <0> pad function pull-down

     <1> pad function pull-up

     <2> pad function pull-disable
   - output value, when direction 1

     <0> pad function pull-disable, default output value LOW

     <1> pad function pull-disable, default output value HIGH

     <2> pad function pull-up, default output value LOW

     <3> pad function pull-up, default output value HIGH

     <4> pad function pull-down, default output value LOW

     <5> pad function pull-down, default output value HIGH

- Ex. gpios = <&rtk_iso_gpio 2 1 1>; /* iso gpio 2, output high */

GPIO Configuration for Power Enable – 2/3

- SATA GPIO configuration
  - Modify device tree “ahci_sata” node
  - Ex. rtd-1619-mmnas-megingjord-2GB.dts or rtd-1619-nas-megingjord-2GB.dts

```
ahci_sata: sata@9803F000 {
    gpios = <&rtk_iso_gpio 67 1 1>,
            <&rtk_iso_gpio 62 1 1>,
            <&rtk_iso_gpio 63 1 1>,
            <&rtk_iso_gpio 64 1 1>;
    sata-port@0 {
            /delete-property/ gpios;
    };
    sata-port@1 {
            /delete-property/ gpios;
    };
};
```

GPIO Configuration for Power Enable – 3/3

- USB GPIO configuration
  - Modify device tree “rtk_usb_power_manager” node
  - Ex. rtd-1619-usb.dtsi

```
rtk_usb_power_manager@0 {
    compatible = "Realtek,usb-manager";
    realtek,port0-power-gpio = <&rtk_iso_gpio 57 1 3>;
    realtek,port1-power-gpio = <&rtk_iso_gpio 48 1 1>;
    realtek,port2-power-gpio = <&rtk_iso_gpio 49 1 3>;

    status = "okay";
};
```