



WLAN device tree configuration



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1 Article purpose

The purpose of this article is to explain how to configure the WLAN when the peripheral (*or peripheral associated to the framework*) is assigned to Linux[®]OS.

The configuration is performed using the *device tree* mechanism that provides a hardware description of the WLAN peripheral connected on SDIO bus.

The purpose of this article is to explain Cypress WLAN/BT companion chip^[1]device tree node



2 DT bindings documentation

The *WLAN*^[2] tree bindings are composed by :

- SDIO link configuration^[3]
- WLAN device configuration^[4]



3 DT configuration

This hardware description is a combination of the STM32 microprocessor device tree files (.dtsi extension) and board device tree files (.dts extension). See the Device tree for an explanation of the device tree file split.

3.1 DT configuration (STM32 level)

The companion chip uses the SDIO link so the DT is based on the SDMMC peripheral node which is located in *stm32mp151.dtsi*

- This is a set of properties that may not vary for given STM32 device, such as: registers address, clock, reset.

The SDMMC DT configuration is explained at [SDMMC device tree configuration](#)



This device tree part is related to STM32 microprocessors. It must be kept as is, without being modified by the end-user.

3.2 DT configuration (board level)

Part of the [device tree](#) is used to describe the WLAN hardware used on a given board. The DT node ("**sdmmc2**") must be filled in:

- mmc-pwrseq: handle to the MMC power sequence node

```
&sdmmc2 {
    ...
    arm,primecell-periphid = <0x10153180>;          /* Mandatory version for SDIO */
    ...
    non-removable;
    st,neg-edge;
    bus-width = <4>;
    vmmc-supply = <&v3v3>;
    mmc-pwrseq = <&wifi_pwrseq>;                    /* handle to the MMC power sequence
node */
    ...
    brcmf: brcmf@1 {                                /* node of WLAN companion chip */
        reg = <1>;
        compatible = "brcm,bcm4329-fmac";
    }
}
```

The `arm,primecell-periphid` property has to be forced to `<0x10153180>` for SDIO. Setting this version disables the support for Linked List in the SDMMC Internal DMA. Linked List mandates all the blocks in the list (except the last one) are the same size, which cannot be satisfied with SDIO.



4 References

- [1], CYW4343W
- WLAN and Bluetooth hardware component
- SDMMC device tree configuration
- Documentation/devicetree/bindings/net/wireless/bcm,bcm43xx-fmac.txt

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Operating System

BlueTooth

Device Tree

MultimediaCard

Secure digital input/output

Direct Memory Access