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**MEDIATEK**

# MT7986 LED Application Note

2021/08/19

# Version History

Version	Date	Author (Optional)	Description
1.0	2021-08-19	Freddy	External version

# Compile Flag

- **#CONFIG\_LED\_CONTROL\_SUPPORT**
- **make kernel\_menuconfig**
  - **Device Drivers**
    - > **Network device support**
      - > **Wireless LAN**
        - > **Mediatek Wireless LAN support**
          - > **WiFi Driver Support**
            - > **WiFi Operation Modes**

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[ ] Bandsteering 2.0 Support
[*] WAPP Support
[ ] SNIFFER
[ ] CFG80211
[ ] Dscp Priority Mapping Support
[ ] Concurrent WPS Support
[*] User specific tx rate of mcast pkt
[*] MediaAir(VOW) support
[*] Band Steering
[*] LED Control Support
[*] WLAN hook Support
[ ] Radius Accounting Support
[*] GreenAP Support

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# MT7986 LED GPIO Mapping

- GPIO1 : WF2G\_LED
- GPIO2 : WF5G\_LED

Ball name	GPIO Reset Default Mode	EINT	Aux Func.0	Aux Func.1	Aux Func.2	Aux Func.3	Aux Func.4	Aux Func.5	Aux Func.6	Aux Func.7
SYS_WATCHDOG	1	EINT0	B:GPIO0	O:SYS_WATCHDOG						
WF2G_LED	1	EINT1	B:GPIO1	O:WF2G_LED					O.dbg_mon_a0	
WF5G_LED	1	EINT2	B:GPIO2	O:WF5G_LED					O.dbg_mon_a1	

# MT7986 Led Command Setting

- iwpriv command
  - iwpriv ra0 set led\_setting=**AA-BB-CC-DD-EE-FF-GG-HH**
    - AA: LED index** (00: 2G\_LED, 01:5G\_LED)
    - BB: TX blink over fix blink** (00: Disable, 01: Enable)
    - CC: Reverse polarity** (00: Disable, 01: Enable)
    - DD: Band selection** (00: Band 0, 01: Band 1)
    - EE: Tx Blink mode** (00: All packets, 01: All Tx packets except Beacon, 02: Only Data frames )
    - FF: Generic fix blinking off time** (unit :10ms)
    - GG: Generic fix blinking on time** (unit :10ms)
    - HH: LED behavior Index**

# MT7986 LED Command Parameters

- **Enhanced Command structure**
  - **TX blink over fix blink**
    - Driver enable two functions (slow blinking and TX blinking). If TX happens, we can see LED triggered by TX blink. If TX idle, we can see LED is slow blinking.
    - Driver can set the bit to 1 if it wants to enable the function.
  - **Reverse polarity**
    - Set the bit to reverse polarity. The function is used only if factory production inverse the polarity uncarefully.
    - **We recommend not to enable this function unless you need.**
  - **Band selection**
    - LED can be configured to band 0/1 to support DBDC. Driver can set the bit to 1 to configure the LED to Band 1 and reset the bit to 0 to configure LED to Band 0.

# MT7986 LED Command Parameters

- **Enhanced Command structure (cont.)**
  - **Tx Blink mode**
    - Select Tx Blink mode of LED. LED can be configured to blink for :
      - 00: All Tx packets
      - 01: All Tx packets except Beacon frames
      - 02: Only Data frames
- **Generic fix blinking**
  - **Support generic fix blinking LED behavior. Driver could specify the fixed blinking on/off time interval by itself.**
  - **We can assign behavior to “Generic fix blinking format”, and then apply the generic fix blinking parameter.**
    - The time unit of on/off interval is 10 ms, so the max value is  $2^8 * 10\text{ms} = 2560\text{ ms}$ .
    - **The generic fix blinking parameter is meaningless if the LED behavior index is not correct.**

# MT7986 LED Command Parameters

- LED Command behavior

Value	Behavior	Note
0	Solid Off	Common
1	Solid On	Common
2	TX Blinking	Common
3	Blinking_500ms_On_500ms_Off (1 blink/sec)	Blinking
4	Blinking_250ms_On_250ms_Off (2 blink/sec)	Blinking
5	Blinking_170ms_On_170ms_Off (3 blink/sec)	Blinking
6	Blinking_500ms_Off_100ms_On	Blinking
7	Blinking_500ms_Off_700ms_On	Blinking
16	3 blink/sec for 4 seconds	WPS
17	5sec_Off_3sec_On then TX Blinking	WPS
18	5sec_Off	WPS
31	Generic fix blinking format	Others



# MT7986 Led Setting Samples

- **Sample 1: Tx blink**
  - **LED0 Tx blink when tx data frames.**  
iwpriv ra0 set led\_setting=00-00-00-00-02-00-00-02
- **Sample 2: Tx over Fix Blink**
  - **If MAC TX happened, apply to LED0 TX blinking. If TX idle, apply to slow blinking for 2 blink per second.**  
iwpriv ra0 set led\_setting=00-00-00-00-00-00-00-04  
iwpriv ra0 set led\_setting=00-01-00-00-00-00-00-02
- **Sample 3: Reverse Polarity**
  - **Reverse polarity in solid on command.**  
iwpriv ra0 set led\_setting=00-00-01-00-00-00-00-01
- **Sample 4: Tx Blink mode selection**
  - **Configure LED0 to blink for all data frames of band1.**  
iwpriv ra0 set led\_setting=00-00-00-01-02-00-00-02
- **Sample 5: Generic Fix Blinking Operation**
  - **Configure LED0 to 2000 ms on, 2000 ms off.**  
iwpriv ra0 set led\_setting=00-00-00-00-00-200-200-31
- **Sample 6: LED1 WPS Blinking**
  - **Configure LED1 to 5sec\_Off\_3sec\_On then TX Blinking.**  
iwpriv ra0 set led\_setting=01-00-00-00-00-00-00-17

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