Test Plan for GPIO

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1 Outline

This document is for the GPIO driver in Linux kernel of MVF TOWER BOARD (XTWR-VF600) with MVF SoC, and describes test plan for each API/feature of such unit.

2 Test Environment

Toolchain: The latest Linaro toolchain
Bootloader: u-boot 2011.12
Kernel: Freescale i.MX Linux 3.0.15 kernel
Rootfs: rootfs on NFS

3 Target Module of the Test

GPIO Driver

4 Test Plan

Carry out a command-based test using sysfs since GPIO is controllable from sysfs.

5 Conditions

Use on-board sw1 and sw2 for input.
Use LED D1, D3, D4 and D6 for output.
Although IOMUX for LED is set as FLEXTIMER on VF600, change it to GPIO temporary for GPIO test.

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Datails

No.	Head	Item	Procedure	Points to be checked	Judge	Note
1	Output Test	Output operation of GPIO	Execute following commands on the target's console. # echo 22 > /sys/class/gpio/export # echo 23 > /sys/class/gpio/export # echo 24 > /sys/class/gpio/export # echo 25 > /sys/class/gpio/export # echo out > /sys/class/gpio/gpio22/direction # echo out > /sys/class/gpio/gpio23/direction # echo out > /sys/class/gpio/gpio24/direction # echo out > /sys/class/gpio/gpio25/direction # echo 1 > /sys/class/gpio/gpio22/value # echo 1 > /sys/class/gpio/gpio23/value # echo 1 > /sys/class/gpio/gpio24/value # echo 1 > /sys/class/gpio/gpio25/value	There is no error All LEDs are on	OK	
2		Change value	Continue from the test above. Execute following command on the target's console. # echo 0 > /sys/class/gpio/gpio22/value	YEL LED is off	OK	
3		Individual operation	Continue from the test above. Execute following command on the target's console. # echo 0 > /sys/class/gpio/gpio23/value	YEL LED is off BLUE LED is not on Other LEDs are not off	OK	
4			Continue from the test above. Execute following command on the target's console. # echo 1 > /sys/class/gpio/gpio22/value	YEL LED is not on BLUE LED is on Other LEDs are not off	OK	
5			Continue from the test above. Execute following command on the target's console. # echo 0 > /sys/class/gpio/gpio22/value # echo 0 > /sys/class/gpio/gpio23/value # echo 0 > /sys/class/gpio/gpio24/value # echo 0 > /sys/class/gpio/gpio25/value	All LEDs are off	OK	
6	Input Test	Input operation of GPIO	Execute following commands on the target's console. # echo 38 > /sys/class/gpio/export # echo 39 > /sys/class/gpio/export # echo in > /sys/class/gpio/gpio38/direction # echo in > /sys/class/gpio/gpio39/direction # echo in > /sys/class/gpio/gpio38/active_low # echo in > /sys/class/gpio/gpio39/active_low # cat /sys/class/gpio/gpio38/value # cat /sys/class/gpio/gpio39/value	0 can be read by value	OK	
7		Obtain value (Push)	Continue from the test above. Push SW1 on the board. Execute following command on the target's console. # cat /sys/class/gpio/gpio38/value	The value changes	OK	

8		Port interference	Continue from the test above. Push SW1 on the board. Execute following commands on the target's console. # cat /sys/class/gpio/gpio38/value # cat /sys/class/gpio/gpio39/value	Value of sw2 (gpio39) is unchanged	OK	
9			Continue from the test above. Push SW2 on the board. Execute following commands on the target's console. # cat /sys/class/gpio/gpio38/value # cat /sys/class/gpio/gpio39/value	Value of sw1 (gpio38) is unchanged	OK	
10		Simultaneous operation	Continue from the test above. Push SW1 and 2 on the board. Execute following commands on the target's console. # cat /sys/class/gpio/gpio38/value # cat /sys/class/gpio/gpio39/value	Value of both sw (gpio38 and 39) is On (1)	OK	
11		Obtain value (Release)	Continue from the test above. Push SW1 and 2 on the board. Execute following commands on the target's console. # cat /sys/class/gpio/gpio38/value # cat /sys/class/gpio/gpio39/value	Value of both sw (gpio38 and 39) is Off (0)	OK	
12	Interrupt					Confirm by Key driver operation