Application Report
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TPS65910x Sequencing Configurations

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ABSTRACT

This document discusses the default voltages and boot orders of the TPS65910x power management integrated circuits (PMICs).

1 Overview

Table 1 defines the default voltages and boot sequence of the TPS65910x power management integrated circuits (PMICs). The values 1 through 7 in the top row represent the 2ms time slots, wherein, a regulator will be enabled. Every TPS65910x device contains the two default configurations shown in the first two rows of this table, selected with the associated logic levels on the BOOT pins.

The entries shown in Table 1 define the unique, factory pre-programmed EEPROM boot sequences for each TPS65910x device, selected via the configuration BOOT 0 = 0, and BOOT 1 = 1. Regulators not listed are off by default.

Table 1. Boot Sequences for Each TPS65910x Device

Sequence	Processor	1	2	3	4	5	6	7
TPS65910x BOOT[0:1]=0/0	AM3517, AM3505	1.8 (VIO), 1.8 (VAUX1)	3.3 (VDD2)	1.2 (VDD1)	1.8 (VPLL)	1.8 (VDAC), 1.8 (VAUX2)	3.3 (VMMC)	
TPS65910x BOOT[0:1]=1/0		1.8 (VIO)	1.8 (VPLL)	1.2 (VDD1)	1.2 (VDD2)	1.8 (VAUX2)	3.3 (VAUX33)	
TPS65910	OMAPL-137/8, C674x	1.2 (VDD1), 1.2 (VDIG1)		1.2 (VDD2)	1.8 (VIO), 1.2 (VDIG2)	3.3 (VAUX33), 3.3 (VMMC)	1.8 (VAUX1), 3.3 (VAUX2)	1.8 (VPLL), 1.8 (VDAC)
TPS65910A	AM335x with DDR2	1.8 (VDAC)	1.8 (VDIG1), 1.8 (VDIG2)	1.8 (VPLL), 1.8 (VAUX1)	1.8 (VIO)	3.3 (VAUX2), 3.3 (VAUX33), 3.3 (VMMC)	1.1 (VDD1)	1.1 (VDD2)
TPS65910A3	AM335x with DDR3	1.8 (VDAC)	1.8 (VDIG1), 1.8 (VDIG2)	1.8 (VPLL), 1.8 (VAUX1)	1.5 (VIO)	3.3 (VAUX2), 3.3 (VAUX33), 3.3 (VMMC)	1.1 (VDD1)	1.1 (VDD2)
TPS65910A31	AM335x with DDR3	1.8 (VDAC)	1.8 (VDIG1), 1.8 (VDIG2)	1.8 (VPLL), 1.8 (VAUX1)	1.5 (VIO)	3.3 (VAUX2), 3.3 (VAUX33), 3.3 (VMMC)	1.1 (VDD1)	1.1 (VDD2)
TPS659101	Samsung: S5PV210, S5PC110	1.1 (VPLL)	1.2 (VDD1), 1.1 (VDD2), 1.1 (VDIG2)	1.8 (VIO)	2.8 (VAUX1), 3.3 (VAUX33), 3.3 (VMMC)	2.6 (VDAC)		
TPS659102	Rockchip: RK29xx, RK30xx	3.3 (VIO)	1.2 (VDIG2), 2.5 (VPLL), 3.3 (VAUX33)		1.2 (VDD1), 1.2 (VDD2)		1.8 (VDAC), 3.3 (VAUX2)	1.8 (VDIG1), 2.8 (VAUX1), 3.0 (VMMC)
TPS659103	Samsung: S5PC100	1.2 (VDIG1)	1.2 (VDD1), 1.2 (VDD2), 1.2 (VDIG2)	1.8 (VIO)	2.8 (VAUX1), 3.3 (VAUX33), 3.3 (VMMC)	3.3 (VAUX2)	1.8 (VPLL)	
TPS659104	Samsung: S5P6440	1.1 (VPLL)	1.1 (VDD1), 1.1 (VDD2), 1.1 (VDIG2)	1.8 (VIO), 1.8 (VDIG1)	3.3 (VAUX33), 3.3 (VMMC)	3.3 (VAUX2)	1.8 (VDAC)	
TPS659105	DM643x, DM644x	1.2 (VDD1)	3.3 (VAUX1), 3.3 (VAUX2), 3.3 (VAUX33)	1.8 (VIO)	1.2 (VDD2)	1.8 (VDIG1), 1.8 (VPLL)	1.8 (VDIG2), 3.3 (VMMC)	1.8 (VDAC)
TPS659106	Freescale: i.MX53	1.8 (VDIG2)	1.275 (VDD2)	1.8 (VIO), 1.3 (VDD1), 2.5 (VAUX1)	1.8 (VDIG1), 2.6 (VDAC), 2.8 (VMMC)	3.3 (VAUX2), 2.8 (VAUX33)		
TPS659107	Freescale: i.MX27, i.MX35	1.35 (VDD1), 3.3 (VAUX33)	3.0 (VMMC)	1.8 (VIO)	2.8 (VAUX1)	1.2 (VDD2), 5.0 (VDD3), 1.5 (VDIG1), 3.3 (VAUX2)	1.8 (VDIG2)	1.8 (VPLL), 2.6 (VDAC)
TPS659108	Freescale: i.MX508	1.1 (VPLL)	1.1 (VDD2)	1.1 (VDD1), 1.2 (VDIG2), 3.3 (VAUX2)	2.5 (VAUX1)	1.8 (VIO)	1.8 (VDAC)	1.2 (VDIG1), 3.3 (VAUX33), 3.3 (VMMC)
TPS659109	Freescale: i.MX51	1.2 (VDIG1)	1.2 (VDD2)	1.8 (VIO)	2.8 (VAUX1), 2.8 (VMMC)	1.1 (VDD1), 1.2 (VDIG2)	1.8 (VPLL)	2.6 (VDAC), 3.3 (VAUX2), 3.3 (VAUX33)

Current limitations for each regulator are further detailed in Table 2.

Table 2. Regulator Limitations

Number of power rails available	12	
Input voltage range	2.7 V - 5.5 V	
Sequencing(power-up/down)	Pre-Programmed *	
Special features	Battery Backup, RTC, Digitally Set Output Voltage	
Multi-Rail Configurations	Voltage Range*	Current limit
DCDC1 (VIO)	1.5 V - 3.3 V	1.0 A
DCDC2 (VDD1)	0.6 V - 3.3 V	1.5 A
DCDC3 (VDD2)	0.6 V - 3.3 V	1.5 A
DCDC4 (VDD3)	5 V	100 mA
LDO1 (VDIG1)	1.2 V - 2.7 V	300 mA
LDO2 (VDIG2)	1 V - 1.8 V	300 mA
LDO3 (VPLL)	1.0 V - 2.5 V	50 mA
LDO4 (VDAC)	1.8 V - 2.85 V	150 mA
LDO5 (VAUX1)	1.8 V - 2.85 V	300 mA
LDO6 (VAUX2)	1.8 V - 3.3 V	150 mA
LDO7 (VAUX33)	1.8 V - 3.3 V	150 mA
LDO8 (VMMC)	1.8 V - 3.3 V	300 mA

Additional features such as clock source, VRTC regulator current limit in off state, reset polarities and enable conditions are further detailed in the device-specific user's guide's listed in Section 2.

2 References

- *TPS65910 User Guide For OMAPL-137, OMAPL-138, and TMS320C674x Family of Processors* (SWCU071)
- *TPS65910 User Guide For AM3517/AM3505 Processor* (SWCA089)
- *TPS65910Ax User's Guide For AM335x Processors* (SWCU093)
- *TPS659101 User Guide for S5PV210 and S5PC110* (SWCU068)
- *TPS659102 User's Guide* (SWCU137)
- *TPS659103 User Guide for S5PC100* (SWCU075)
- *TPS659104 User Guide for S5P6440x* (SWCU072)
- *TPS659105 User Guide For DaVinci Family of Processors* (SWCU074)
- *TPS659106 User's Guide For i.MX53 Processors* (SWCU090)
- *TPS659107 User Guide For i.MX27 and i.MX35 Processors* (SWCU073)
- *TPS659108 User Guide For i.MX508* (SWCU077)
- *TPS659109 User Guide For i.MX51 and i.MX37 Processors* (SWCU070)

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