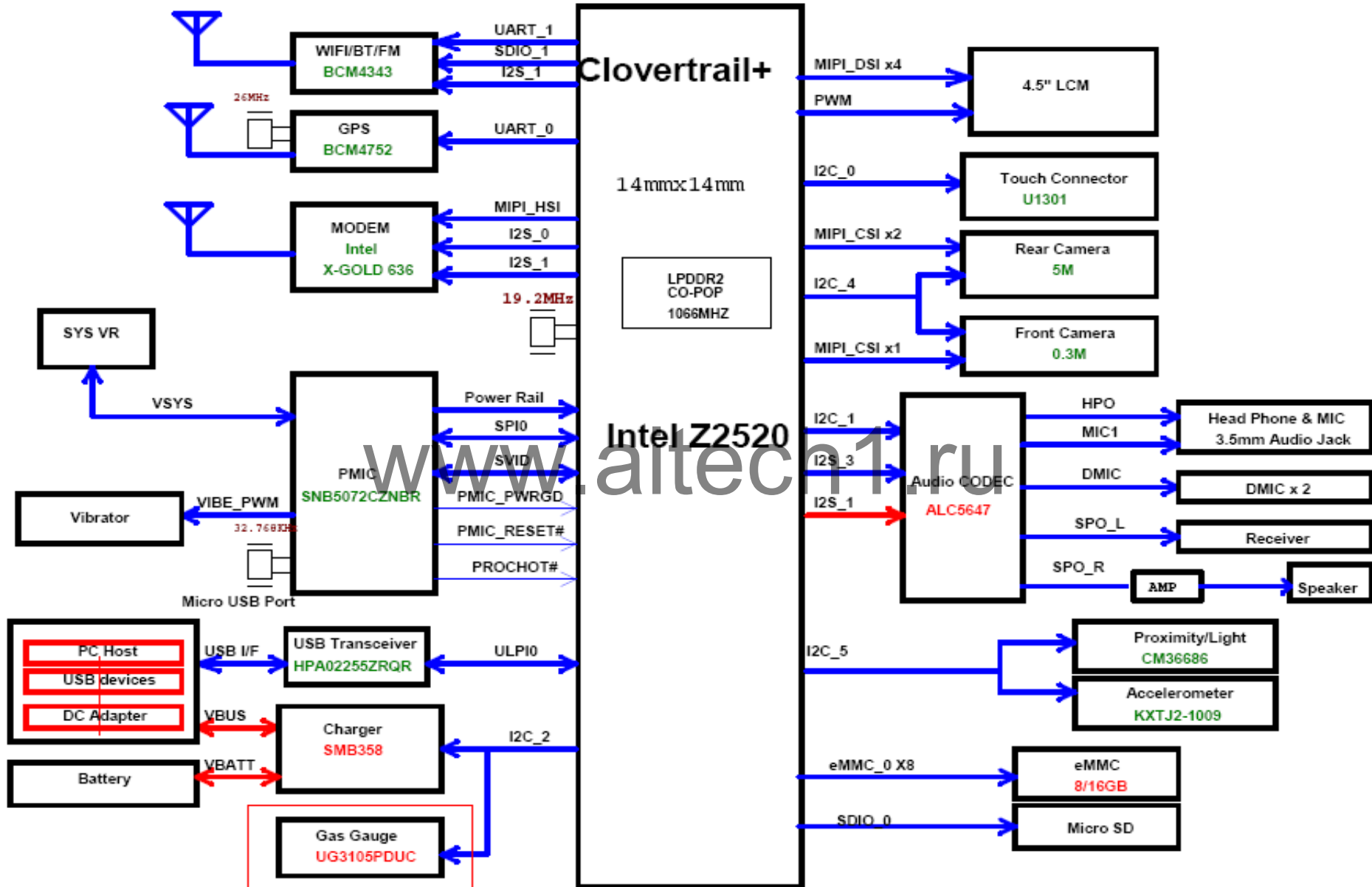


ZC451CG_Repair_Guide

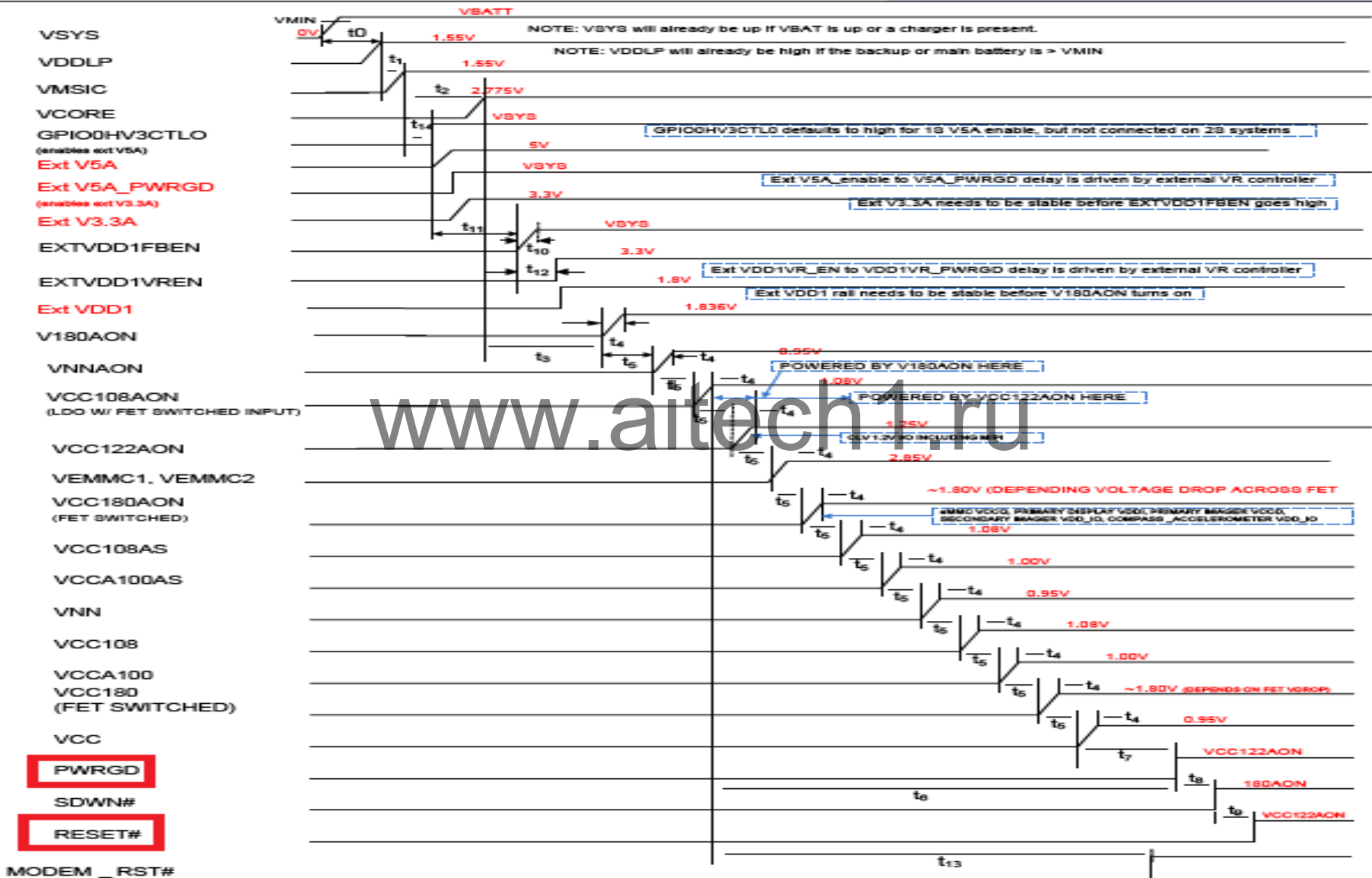
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Eason_Hsiao
2015/01/07

Z451CG Block Diagram



PMIC Power-On Sequence

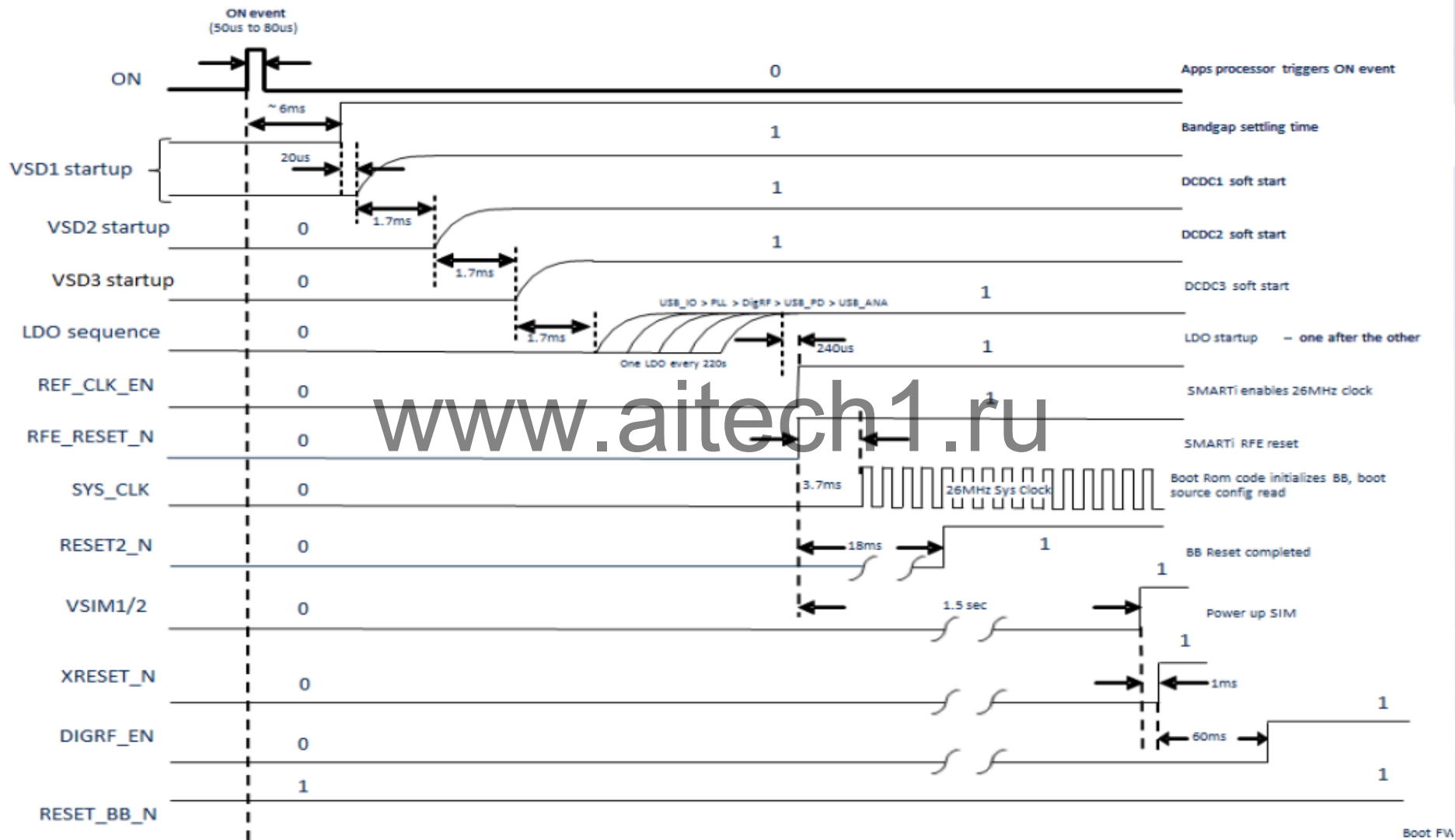


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PMIC Power Rail to SOC

System Rail Name	Rail Type	Voltage	Purpose	Tolerance	Active ⁵ Power States	Typical Current (mA) ⁵	Peak Current ^{1,2} (mA) ⁵	Notes
VCC	V	0.3–1.2	Core CPU power	± 5%	S0	300–1300	3800	
VCC108AON	F	1.08	SRAM in AON domain	± 25mV	AON	1.125	11.125	
VCC108AS	F	1.08	SRAM needed for Audio playback	± 30mV	S0–S0i2	6	25	
VCC108	F	1.132	L2 and SRAMs for entire chip	± 50mV	S0	10–30	315	
VNNAON	V	0.6–1.2	SCU Block	± 5%	AON	1–10	200	
VNN	V	0.6–1.2	Non-CPU logic	± 5%	S0–S0i1	308–1160	3500	
VCCA100	F	1.05	SoC PLLs, DTS	± 2.5%	S0	37	120	
VCCA100AS	F	1.0	PLL, HDMI Vref	± 2%	S0–S0i1	12	20	
VCC122AON	F	1.25	LPDDR2 I/O, PMIC Control, SPI (Port0, PMIC), SVID, I2S_2; Thermal control, HDMI DDC; MIPI DSI and CSI	+ 40mV to - 45mV	AON	10–150	243	3
VDD2	S	1.25/1.35	LPDDR2 core	± 5%	AON	250	680	
Selectable Voltage GPIOs	S	1.25 or 1.8	I ² C Ports (0:2); SPI (1)	Supply dependent	AON	-	Included in VCC122AON and VCC18AON	
V180AON	F	1.8	LPDDR2 Pre-driver Logic—Not used by the SoC	± 5%	AON	16	125	
VCC180AON	F	1.8	ULPI, SPI (2/3); COMS_INT HS UART; GPIO; I ² S (0:1); JTAG; CAMERASB; I ² C (4:5); SDIO (1:2); GPIO/PTI; e-MMC ⁺ ; HSI, PWM	± 5%	AON	20–50	201	4
VCC330	F	3.3	HDMI 1.3 Data I/F	± 5%	S0	6	50	
VCCSDIO	V	2.85	SDIO/MMC External Port	± 5%	S0	4	55	

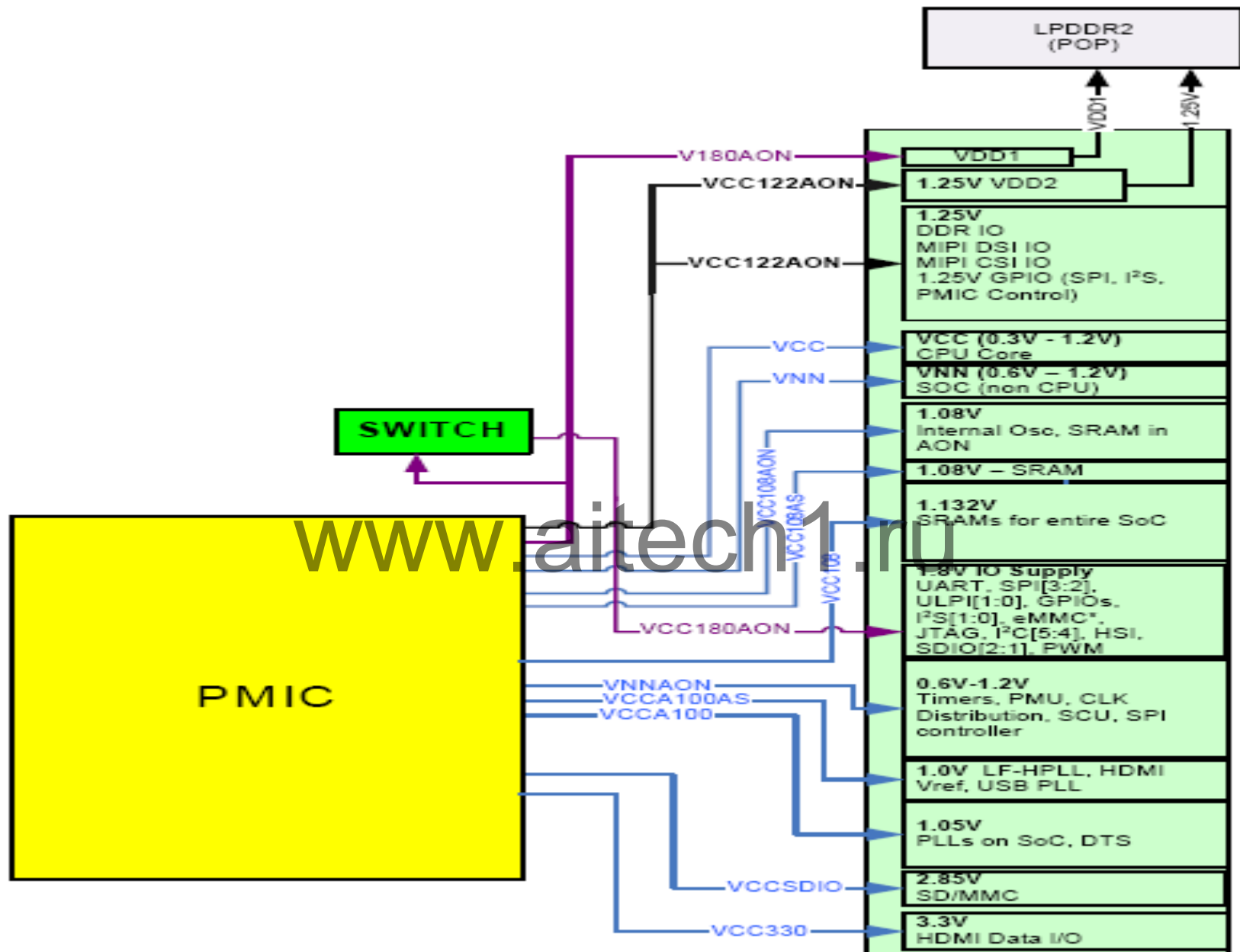
Modem Power-On Sequence



Boot FW

Modem PMU Power Rail

X-GOLD™ 716 Regulator Name	Input Source	Nominal Output Voltage [V]	Max Output Current [mA]	Supplied Devices (Assumptions: MIPI_HSI = 1.8 V & External Memory Interface (EMIC) = 1.2 V)
SD1	VBAT	1.0 +/- 5%	720 IOUT	X-GOLD™ 716: VDD_CORE_MAINx, VDD_CORE_3G_x, VDD_CORE_LTE _x
SD2	VBAT	1.8 +/- 5%	500 IOUT	X-GOLD™ 716: VDD_IO_1V8_x, VDD_IO_EMIC_1V8, VDD_IO_MIPI* SMARTi™ 4G: VDDIO Ext. Memory
SD3	VBAT	1.22 +/- 5%	300mA Max. tbd	X-GOLD™ 716: VDD_IO_HSIC_1V2, VDD_CORE_EMIC_1V2, VDD_IO_EMICx**, VDD_IO_EMIC_1V2_x
VUSB_PD	SD2	1.1 +/- 2%	40	X-GOLD™ 716: VDD_PD (HS-USB Phy Digital Part, USB- HSIC)
VUSB_ANA	VBAT	1.8 +/- 2%	40	X-GOLD™ 716: VDD_USB_ANA (HS-USB Phy Analog Part)
VUSB_IO	VBAT	2.5 +/- 2% 2.85 +/- 2% 3.1 +/- 2%	40	X-GOLD™ 716: VDD_USBIO (HS-USB Phy IOs, USB PLL)
VPLL	SD2	1.2 +/- 2%	30	X-GOLD™ 716: VDD_PLL, VDD_DLL_EMIC
VDIGRF	SD2	1.2 +/- 2%	40	X-GOLD™ 716: VDD_MPHY_RX_1V2, VDD_MPHY_TX_1V2
VSIM1 & VSIM2	VBAT/ SD2	1.8 +/- 2% 2.9	40	X-GOLD™ 716: VDD_IO_SIM1, VDD_IO_SIM2, SIM Card Holder1/2.
VPMU	VBAT/ SD2	1.1 +/- 5% 1.3	15	X-GOLD™ 716: PMU supply. Automatically enabled and cannot be disabled. Not connected to any external supply pins on X-GOLD™ 716.
VRTC	VBAT	1.8 +/- 5%	7	X-GOLD™ 716: VDD_RTC (Real Time Clock supply)



Atom processor Z25xx Series SoC

Thank You!

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