



BP30 Power Management description

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BP30 Power Management Overview

■ Infineon E-POWERlite PMB6814

- E-POWERlite provides almost all the required supply domain for the modem functionality

■ Discrete Regulators

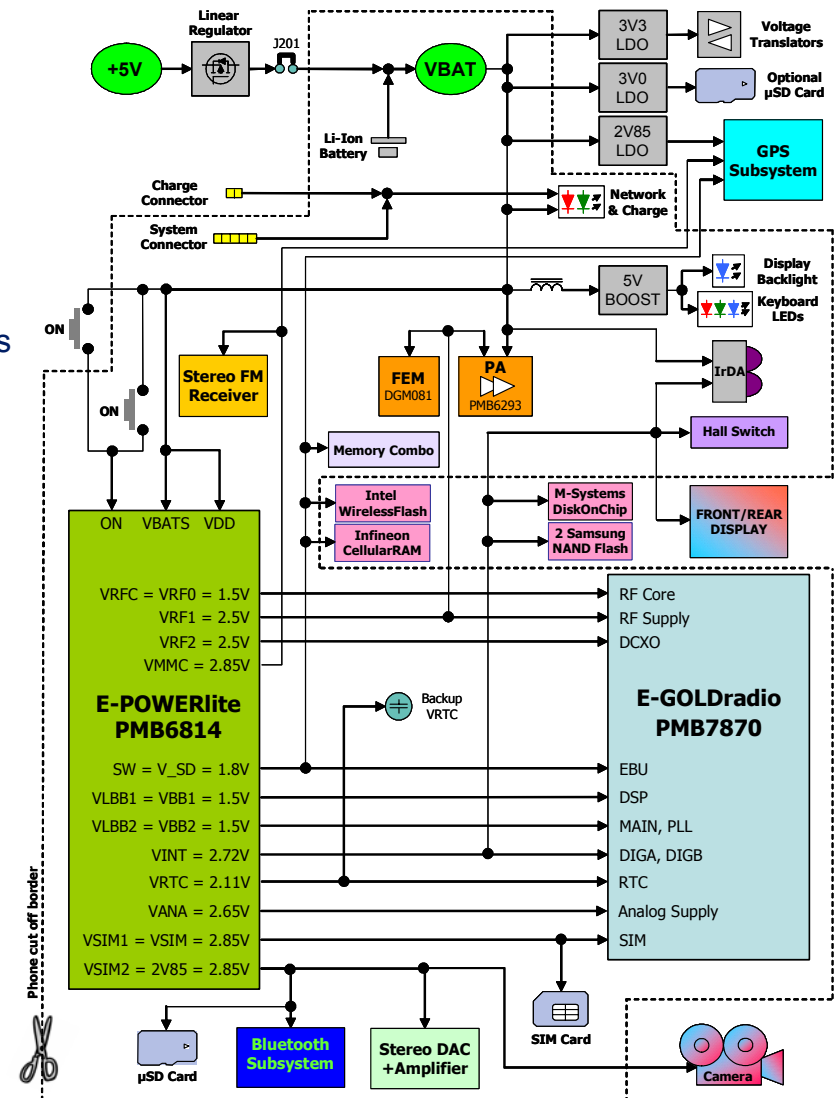
- 5V Boost Regulator for LEDs and displays backlight
- 3.3V LDO Regulator for serial ports voltage translators
- 3.0V LDO Regulator for optional uSD card supply
- 2.85V LDO Regulator for GPS subsystem
- 3.8V LDO Regulator for VBAT drop from 5V input

■ Power Supply Connectors

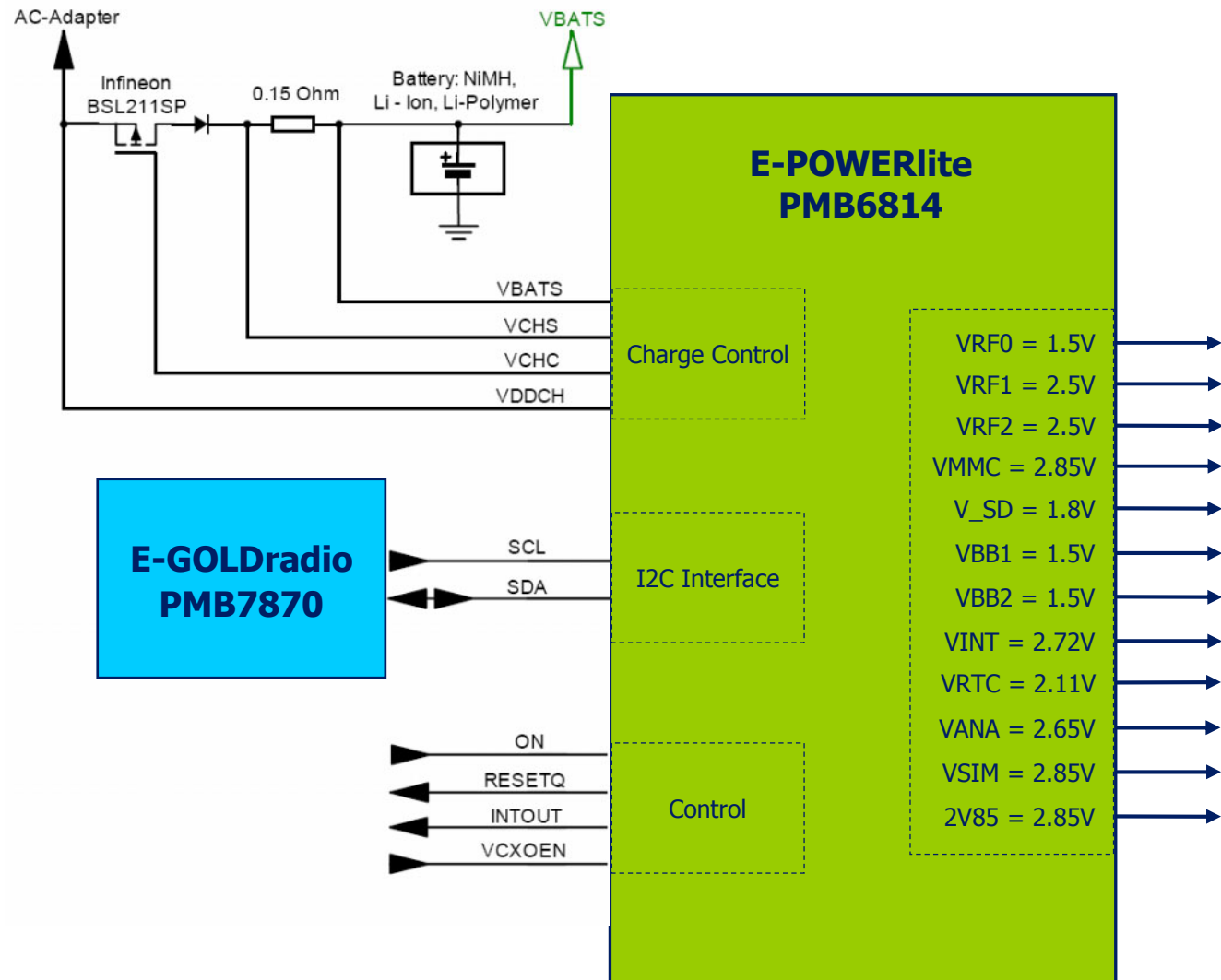
- 5V AC/DC adapter plug-in connector
- 5V DC Power Supply header connector
- 3.8V DC Power Supply header connector
- Battery pitch 2-pin connector

■ Charge Connector

- Charge control for Li-Ion, Li-Polymer, NiMH batteries



E-POWERlite main features



E-POWERlite power supplies

Supply domain	Voltage level	Max Current	Supplied Devices / Remarks
V_SD	1.80 V	400 mA	SDBB Step-Down converter. Input for LBB1, LBB2 and LRFC. Supply for External Bus Unit of E-GOLDradio, Memories and Core Regulator of Hammerhead PMB2520 (A-GPS Device)
VBB1	1.50 V	170 mA	E-GOLDradio DSP (TEAKlite) supply (supplied by SDBB)
VBB2	1.50 V	170 mA	E-GOLDradio core C166S MCU supply (supplied by SDBB)
VANA	2.65 V	220 mA	Supply for analog part in E-GOLDradio
VINT	2.72 V	135 mA	Supply for various parts in E-GOLDradio (I2C, I2S, SSC, ASC, Keypad, JTAG, RF Control Unit, GSM TDMA Timer), Front/Rear Display, Memories, IrDA (LEDA), Hall Switch
VSIM	2.85 V	22 mA	Supply for SIM interface
2V85	2.85 V	200 mA	Supply for Camera, MAX9850 (Stereo Audio DAC with Headphone Amplifier), microSD Card and main supply for PMB8753 (BlueMoon UniCellular Bluetooth Device)
VRTC	2.11 V	0.3 mA	Ultra-low zero-load current. Supply for Real Rime Clock
VRF0	1.50 V	120 mA	Supply for E-GOLDradio RF Part (supplied by SDBB)
VRF1	2.50 V	120 mA	Supply for E-GOLDradio RF Part, Antenna Switch and digital supply for PMB6293 (Quad Band Power Amplifier)
VRF2	2.50 V	10 mA	Supply for E-GOLDradio DCXO
VMMC	2.85 V	22 mA	Supply for FM Receiver, PLL and LP Voltage Regulator of Hammerhead PMB2520 (A-GPS Single Chip Device)

Discrete regulators

- LM2750

5V Low-Noise Boost Regulator to supply LEDs and display backlight (+5V)

- MIC5205BM5

3.3V Low-Noise LDO to supply the fast serial ports voltage translators (3V3)

- MIC5205BM5

3.0V Low-Noise LDO to supply optional microSD card (3.0V)

- MIC5205BM5

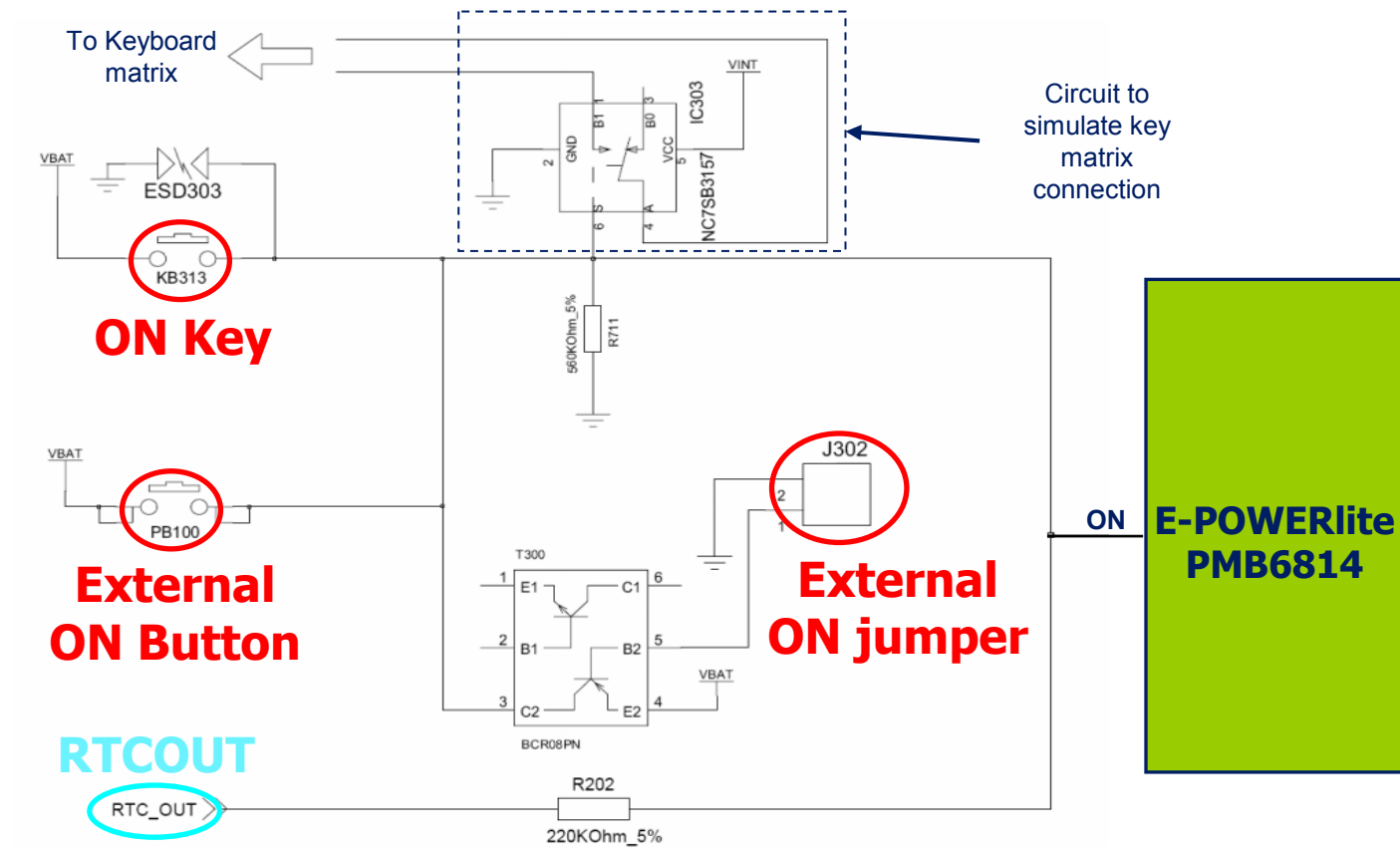
2.85V Low-Noise LDO to supply GPS subsystem (VDD_GPS)

- LT1764AEQ

3.8V Low Noise LDO Voltage Regulator to drop supply from 5V input (VBAT)

Power-on

- ON is a power-on input for E-POWERlite with 2 active high levels
- It can be triggered by a push button or by E-GOLDradio RTCOUT output

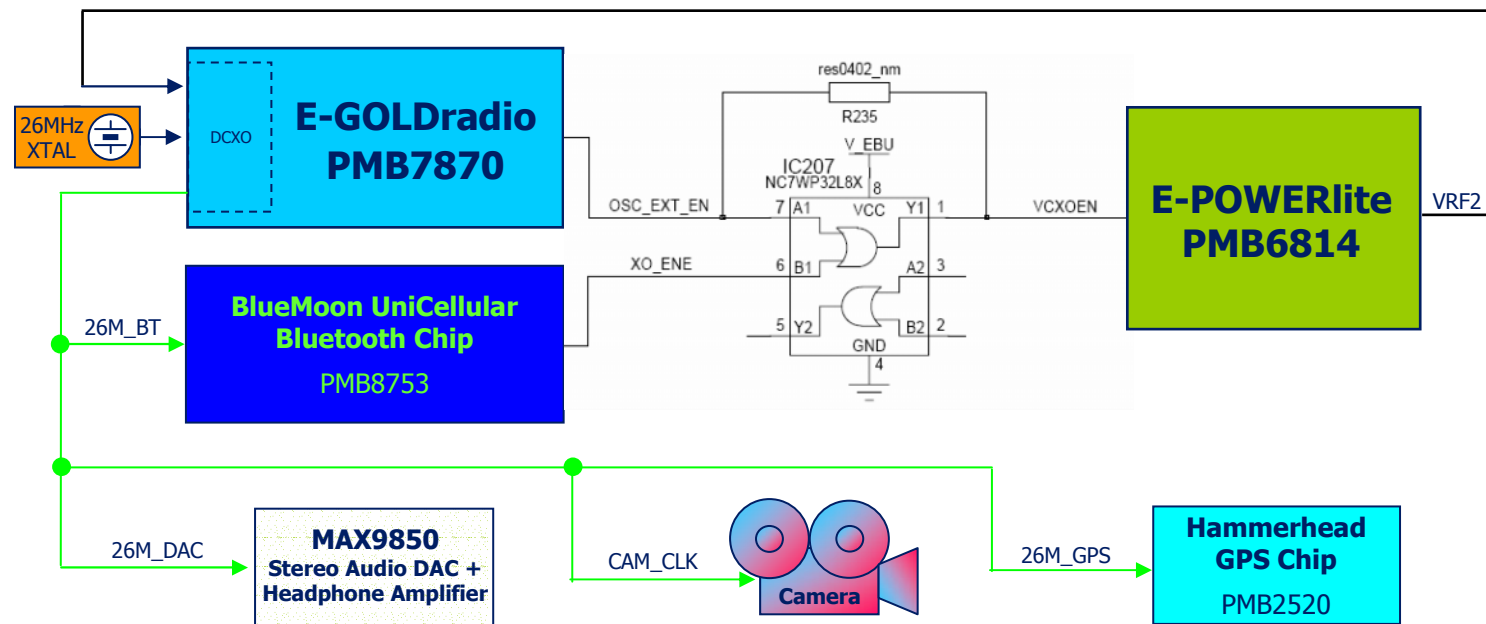


Turn-on sequence

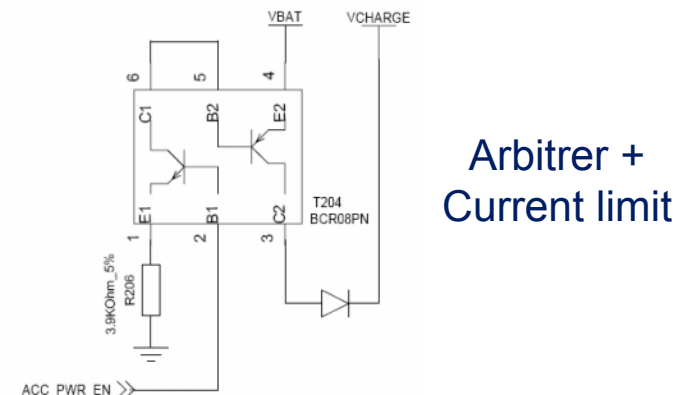
Sequence	Function	Pin	Typical Time for Activation of next Sequence Step
			[ms]
1	LRTC INTOUT => high RESETQ => low	VRTC INTOUT RESETQ	0
2	BGREF	BYP	20
3	IREF (Reset counter started)	IREF	1
4	LRF2	VRF2	2
5	SDBB	VDDC	0
6	LBB2	VBB2	4
7	LBB1	VBB1	0
8	LINT	VINT	2
9	LANA	VANA	2
10	LSIM	VSIM1	2
11	LSIM2	VSIM2	2
12	LMMC	VMMC	3 (ensures t_1)
13	INTOUT => low Internal reset sequence t_{resint} finished	INTOUT	33 (ensures t_2)
14	RESETQ => high	RESETQ	

Mode toggling

- VCXOEN is a control signals that allows switching the state of the power management functions of the E-POWERlite with a single signal
- VCXOEN = 0 → standby mode (26MHz DCXO OFF)
- VCXOEN = 1 → active mode (26MHz DCXO ON)

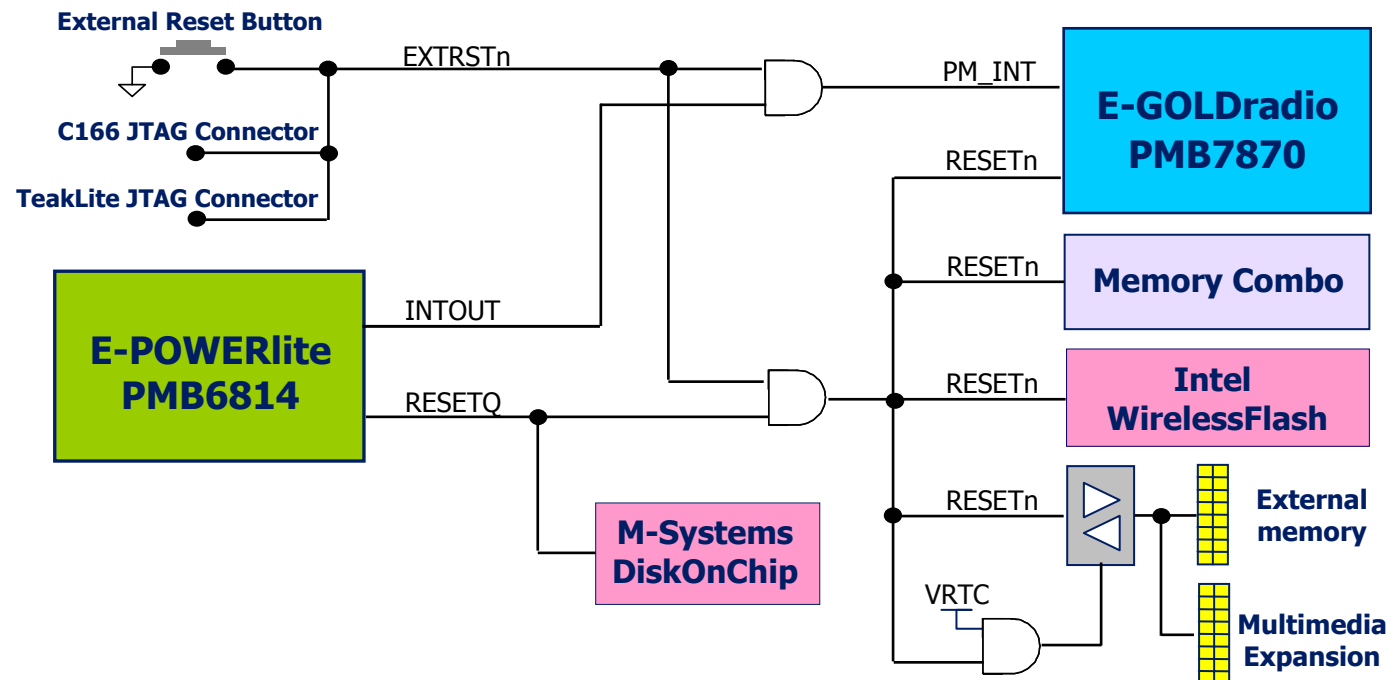


- E-POWERlite provides together with external p-channel FET and an external AC-adapter a complete charge control function
- The following batteries can be used: Li-Ion, Li-Ion-Polymer, NiMH



Reset and Interrupt handling

- Reset signal can be asserted by E-POWERlite, by an external reset button, by MCU JTAG debugger or by DSP JTAG debugger
- E-GOLDradio outputs can be put into tristate by setting properly PM_INT and RESETn pins



Other E-POWERlite features

■ Audio Amplifier

- Can drive loads down to 8 Ohm (nominal)
- Allows hands-free operation and polyphone ringing
- Programmable common mode voltage for maximum output power
- Adjustable gain and mute switch

■ Vibrator Driver

- Adjustable voltages
- Soft startup / shutdown
- Current limitation

■ LED Drivers

- Constant current LED driver for backlight up to 120mA
- 2 signaling LEDs outputs

