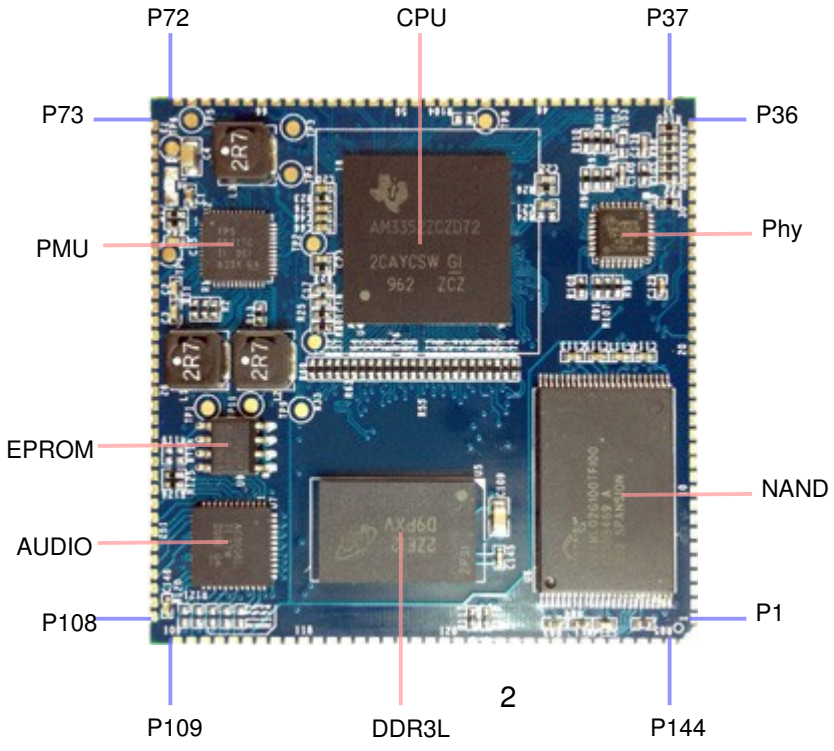
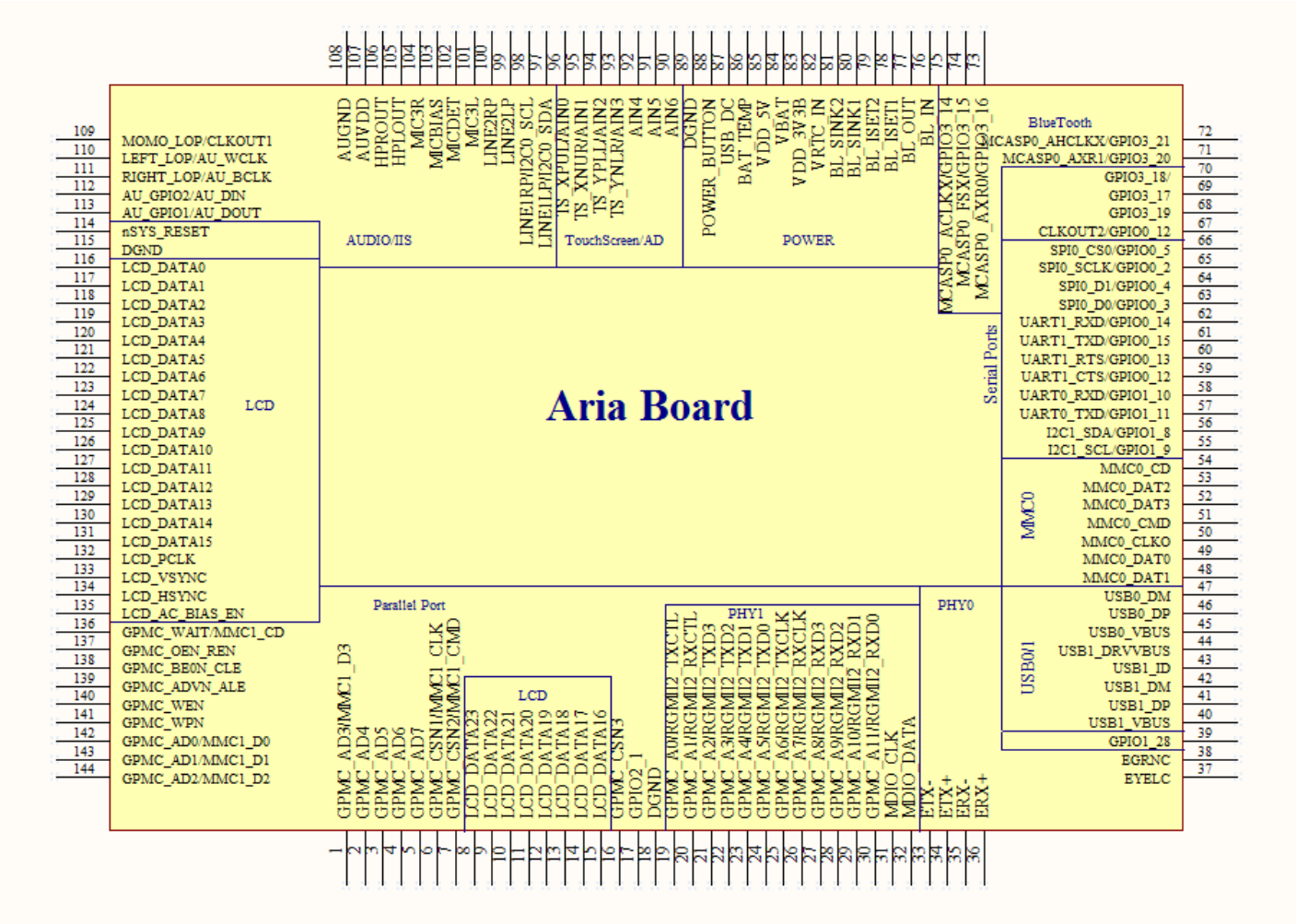
内容目录

一. 规格概述

- 800MHz TI AM3352 Cortex A8 控制器
- 选配 128MB-512MiB Nand Flash 或 2GB-64GB eMMC 存储器
- 128MiB-512MiB DDR3L SDRAM, 400MHz,标配 256MiB DDR3L
- 10/100Mbps 网络控制器 LAN8710A
- 音频解码器 TLV320AIC3106
- 电源 PMU TPS65217D
- 256KB EPROM
- 144PIN 邮票孔焊盘
- 焊盘间距 1.27mm
- 物理尺寸 50mm * 50mm * 4.3mm
- 工作温度: 0°C to 70°C



二. Pin 脚定义



Aria board Pin 脚顺序图

PIN	Signal	Description	Function
1	GPMC_AD3	MMC1_D3	eMMC
2	GPMC_AD4	MMC1_D4	eMMC
3	GPMC_AD5	MMC1_D5	eMMC
4	GPMC_AD6	MMC1_D6	eMMC
5	GPMC_AD7	MMC1_D7	eMMC
6	GPMC_CS1n	MMC1_CLK	eMMC
7	GPMC_CS2n	MMC1_CMD	eMMC
8	LCD_DATA23	LCD_B0	LCD_24bpp
9	LCD_DATA22	LCD_G0	LCD_24bpp
10	LCD_DATA21	LCD_R0	LCD_24bpp
11	LCD_DATA20	LCD_B1	LCD_24bpp
12	LCD_DATA19	LCD_G1	LCD_24bpp
13	LCD_DATA18	LCD_R1	LCD_24bpp
14	LCD_DATA17	LCD_B2	LCD_24bpp
15	LCD_DATA16	LCD_R2	LCD_24bpp
16	GPMC_CS3n	GPIO2_0	Parallel Port
17	GPIO2_1		GPIO
18	DGND		PWR
19	GPMC_A0	RGMII2_TXCTL	RGMII
20	GPMC_A1	RGMII2_RXCTL	RGMII
21	GPMC_A2	RGMII2_TXD3	RGMII
22	GPMC_A3	RGMII2_TXD2	RGMII
23	GPMC_A4	RGMII2_TXD1	RGMII
24	GPMC_A5	RGMII2_TXD0	RGMII
25	GPMC_A6	RGMII2_TXCLK	RGMII
26	GPMC_A7	RGMII2_RXCLK	RGMII
27	GPMC_A8	RGMII2_RXD3	RGMII
28	GPMC_A9	RGMII2_RXD2	RGMII
29	GPMC_A10	RGMII2_RXD1	RGMII
30	GPMC_A11	RGMII2_RXD0	RGMII
31	MDIO_CLK		RGMII
32	MDIO_DATA		RGMII
33	PHY_ETX-		PHY1
34	PHY_ETX+		PHY1
35	PHY_ERX-		PHY1
36	PHY_ERX+		PHY1
37	PHY_YELC		PHY1
38	PHY_GRNC		PHY1
39	GPIO1_28		GPIO
40	USB1_VBUS		USB1
41	USB1_DP		USB1
42	USB1_DM		USB1
43	USB1_ID		USB1

44	USB1_DRVVBUS		USB1
45	USB0_VBUS		USB0
46	USB0_DP		USB0
47	USB0_DM		USB0
48	MMC0_DAT1		SD CARD
49	MMC0_DAT0		SD CARD
50	MMC0_CLKO		SD CARD
51	MMC0_CMD		SD CARD
52	MMC0_DAT3		SD CARD
53	MMC0_DAT2		SD CARD
54	MMC0_CD		SD CARD
55	I2C_SCL	GPIO1_9	Serial Port
56	I2C_SDA	GPIO1_8	Serial Port
57	UART0_TXD	GPIO1_11	Serial Port
58	UART0_RXD	GPIO1_10	Serial Port
59	UART1_CTS	GPIO0_12	Serial Port
60	UART1_RTS	GPIO0_13	Serial Port
61	UART1_TXD	GPIO0_15	Serial Port
62	UART1_RXD	GPIO0_14	Serial Port
63	SPI0_D0	GPIO0_3	Serial Port
64	SPI0_D1	GPIO0_4	Serial Port
65	SPI0_SCLK	GPIO0_2	Serial Port
66	SPI0_CS0	GPIO0_5	Serial Port
67	CLKOUT2	GPIO0_12	GPIO
68	GPIO3_19		GPIO
69	GPIO3_17		GPIO
70	GPIO3_18		GPIO
71	MCASP0_AXR1	GPIO3_20	BlueTooth
72	MCASP0_AHCLKX	GPIO3_21	BlueTooth
73	MCASP0_AXR0	GPIO3_16	BlueTooth
74	MCASP0_FSX	GPIO3_15	BlueTooth
75	MCASP0_ACLKX	GPIO3_14	BlueTooth
76	BL_IN	Switch Pin of the WLED boost converter. Connected to Inductor.	PWR
77	BL_OUT	Feedback pin for WLED boost converter. Also connected to the Anode of the WLED strings.	PWR
78	BL_ISET1	Low-level WLED current set. Connect a resistor to ground to set the WLED low-current level.	PWR
79	BL_ISET2	High-level WLED current set. Connect a resistor to ground to set the WLED high-current level.	PWR
80	BL_SINK1	Input to the WLED current SINK1. Connect to the cathode of the WLED string. Current through SINK1 equals	PWR

		current through ISINK2. If only one WLED string is used, short ISINK1 and ISINK2 together.	
81	BL_SINK2	Input to the WLED current SINK2. Connect to the cathode of the WLED string. Current through SINK1 equals current through ISINK2. If only one WLED string is used, short ISINK1 and ISINK2 together.	PWR
82	VRTC_IN	RTC power input	PWR
83	VDD_3V3B	VDD 3V3 out put.	PWR
84	VBAT	Battery charger output. Connect to battery.	PWR
85	VDD_5V_IN	AC adapter input to power path. Connect to an external DC supply.	PWR
86	BAT_TEMP	emperature sense input. Connect to NTC thermistor to sense battery temperature. Works with 10k and 100k thermistors. See charger section for details.	PWR
87	USB_DC_IN	USB voltage input to power path. Connect to external voltage from a USB port.	PWR
88	POWER_BUTTON	Push-button monitor input. Typically connected to a momentary switch to ground (active low).	PWR
89	DGND		PWR
90	AIN6		AD
91	AIN5		AD
92	AIN4		AD
93	TS_YNLR	AIN3	AD
94	TS_YPLL	AIN2	AD
95	TS_XNUR	AIN1	AD
96	TS_XPUL	AIN0	AD
97	LINE1LP	I2C0_SDA	AUDIO
98	LINE1RP	I2C0_SCL	AUDIO
99	LINE2LP		AUDIO
100	LINE2RP		AUDIO
101	MIC3L		AUDIO
102	MICDET		AUDIO
103	MICBIAS		AUDIO
104	MIC3R		AUDIO
105	HPLOUT		AUDIO
106	HPROUT		AUDIO
107	AUVDD		AUDIO
108	AUGND		AUDIO

109	MOMO_LOP	CLKOUT1	AUDIO
110	LEFT_LOP	AU_WCLK	AUDIO
111	RIGHT_LOP	AU_BCLK	AUDIO
112	AU_GPIO2	AU_DIN	AUDIO
113	AU_GPIO1	AU_DOUT	AUDIO
114	nSYS_RESET	System Reset signal output	Reset Out
115	DGND		PWR
116	LCD_DATA0	LCD_R3	LCD_24bpp
117	LCD_DATA1	LCD_R4	LCD_24bpp
118	LCD_DATA2	LCD_R5	LCD_24bpp
119	LCD_DATA3	LCD_R6	LCD_24bpp
120	LCD_DATA4	LCD_R7	LCD_24bpp
121	LCD_DATA5	LCD_G2	LCD_24bpp
122	LCD_DATA6	LCD_G3	LCD_24bpp
123	LCD_DATA7	LCD_G4	LCD_24bpp
124	LCD_DATA8	LCD_G5	LCD_24bpp
125	LCD_DATA9	LCD_G6	LCD_24bpp
126	LCD_DATA10	LCD_G7	LCD_24bpp
127	LCD_DATA11	LCD_B3	LCD_24bpp
128	LCD_DATA12	LCD_B4	LCD_24bpp
129	LCD_DATA13	LCD_B5	LCD_24bpp
130	LCD_DATA14	LCD_B6	LCD_24bpp
131	LCD_DATA15	LCD_B7	LCD_24bpp
132	LCD_PCLK		LCD_24bpp
133	LCD_VSYNC		LCD_24bpp
134	LCD_HSYNC		LCD_24bpp
135	LCD_AC_BIAS_EN		LCD_24bpp
136	GPMC_WAIT	MMC1_CD	Parallel Port
137	GPMC_OEN_REN		Parallel Port
138	GPMC_BE0N_CLE		Parallel Port
139	GPMC_ADVN_ALE		Parallel Port
140	GPMC_WEN		Parallel Port
141	GPMC_WPN		Parallel Port
142	GPMC_AD0	MMC1_D0	Parallel Port
143	GPMC_AD1	MMC1_D1	Parallel Port
144	GPMC_AD2	MMC1_D2	Parallel Port

三. Aria CoreBoard 硬件接口概述

1. 启动方式

Aria Coreboard 可以选择从多种外设启动, 用户可以通过在底板上配置 LCD[0:4]的上下拉电阻或者拨码开关来配置 Aria Coreboard 的启动方式.

有关启动方式的配置和选择请参考如下资料:

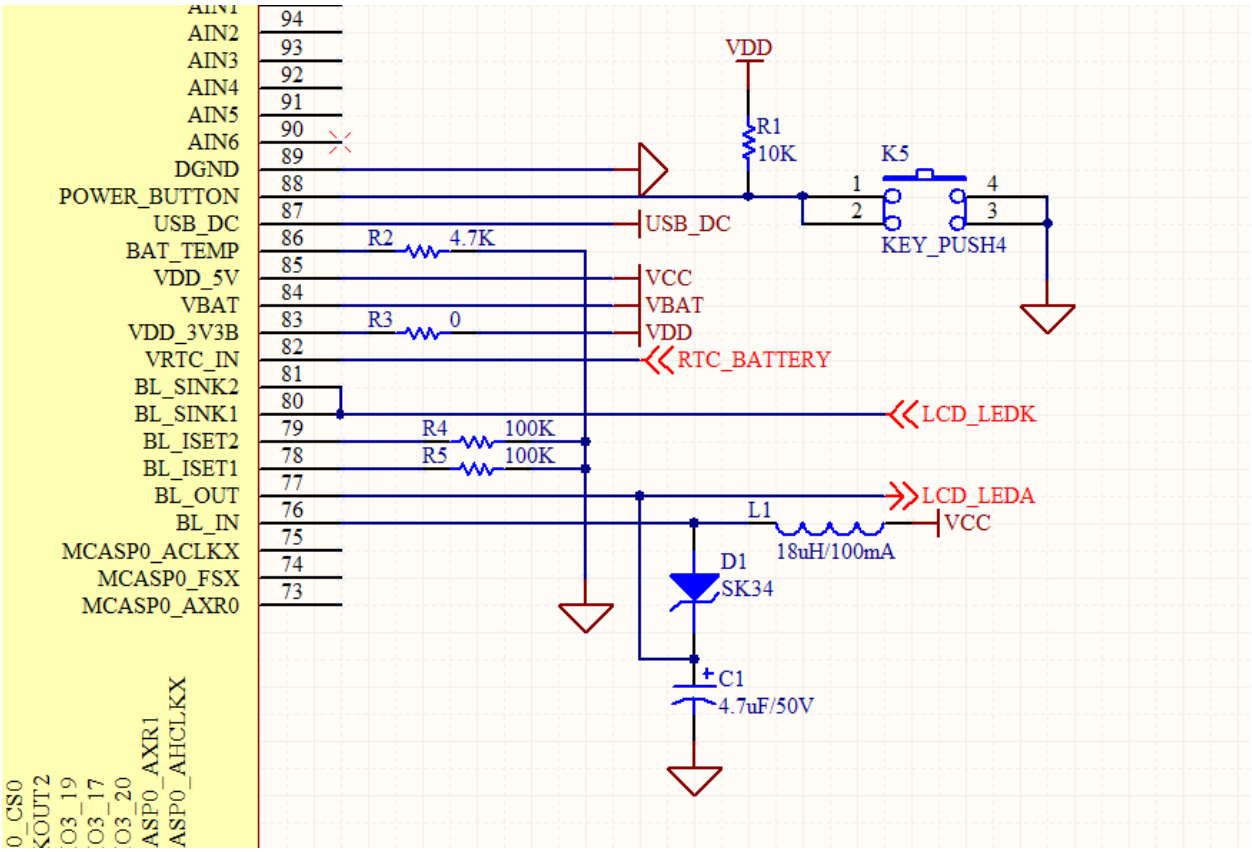
AM335x ARM Cortex-A8 Microprocessors (MPUs) Technical Reference Manual (Rev. I)_

P4678-4683 页.

2. PWR 接口

PMU 采用 TI 的 tps65217d. 接口包含 PIN76-PIN89. 支持单电源(5V)供电, 支持 Li 电池供电及充放电管理. 包含 LCD Backlight 驱动器,可外接 RTC 电池.

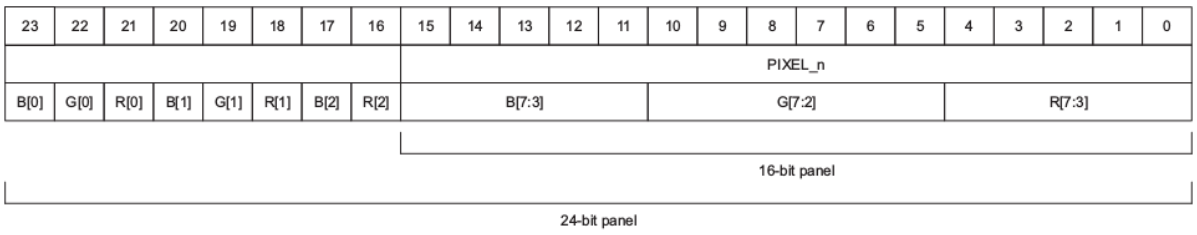
外围电路示意图如下:



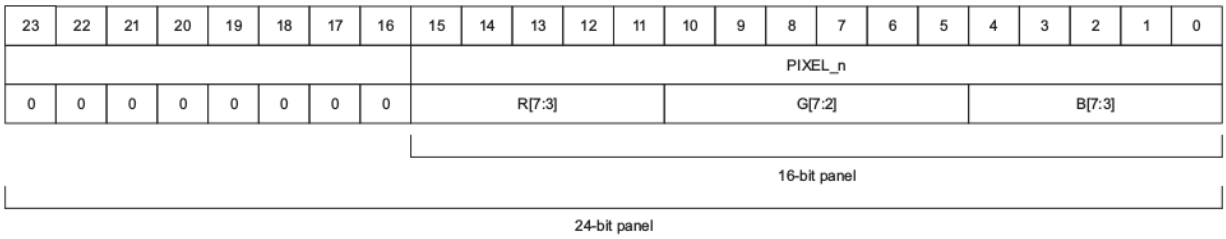
3. LCD 接口

AM335X 的 TFT LCD 接口支持 RGB888 和 RGB565 格式

请注意 RGB888 模式和 RGB565 模式 LCD 数据排列顺序不同,如下图:



RGB888 Mode LCD Controller Output Pin Mapping



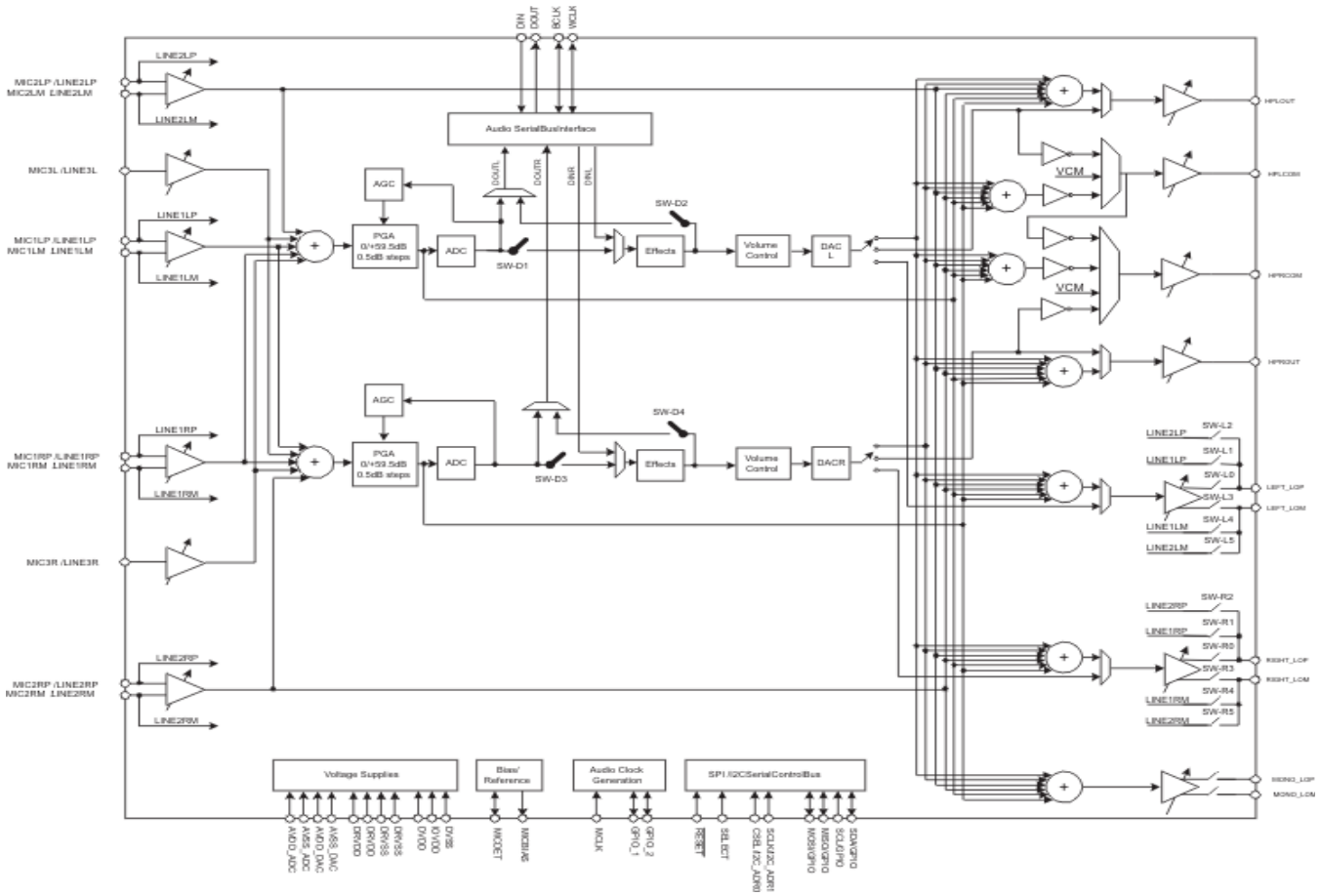
RGB565 Mode LCD Controller Output Pin Mapping

LCD Backlight 可采用 PWM 方式控制外置背光驱动器,也可以使用核心板提供的背光驱动器. 在 Demo 板上采用的是外置背光驱动器.

4. Audio 接口

Aria CoreBoard 板载 TI 的 TLV320AIC3106 Audio 驱动器, 可直接驱动数字麦克风和耳机. 原理图参见 Demo 板.

为适应特种需求,Aria Coreboard 同时也将 Audio 用到的所有 AM335X 的 IIC 和 IIS 的 Pin 脚都引出,用户可以要求核心板不带 Audio 功能,自行在底板上使用其他 Audio 驱动器.



TLV320AIC3106 的功能框图

5. USB 驱动器

Aria Coreboard 具有两个全功能的支持 HOST, SLAVER, OTG 三种模式的 USB 接口.USB0 在核心板上配置为 SLAVER 模式,(去掉 R104 即可配置为 HOST 模式). USB1 可以通过 USB1_ID PIN 脚配置为任一模式.