Rock64 Ver 3 Change Notice

Below are the new changes on ROCK64 SBC ver 3 board. Most of the suggestion comes from PINE64 forum and the suggestion thread located at https://forum.pine64.org/showthread.php?tid=6256.

1.Add connector and circuit for Real Tice Clock (RTC) backing. By plug in 3V Battery to the RTC connector, this allows ROCK64 ver 3.0 SBC's real tick clock continue working during power off stage.

2.Change LAN magnetic to support PoE (802.3af/802.3at) capability, and four pins connector for PoE extension.

3.Implement SD card UHS transfer speed by configure the RK3328 VCCIO3 to ether 3.3V (normal speed) or 1.8V (UHS speed). Using GPIO0_D6 "SDMMC 0_PWREN" assigned as control line, level high (default) is 3.3V supply and level low is 1.8V supply to VCCIO3.

4.Fixed SPI Clock and SPI Chip Select signals swap due to layout error.

5.Redifined several GPIO pins on PI2 bus so that ROCK64 ver 3.0 SBC can support Raspberry Pi's audio DAC HAT board that currently available in market. Please refer to below Pi2 bus pins arrangement. Marked RED means new changes.

6.Reassigned two pins in P5 bus to allow POWER ON and RESET functions access. Please refer to below Pi2 bus pins arrangement. Marked RED means new changes.

7.Improved transmission packet loss on gigabit Ethernet by adjusting LED0/CFG_EXT and LED2/CFG_LDO1 pull up resistor connect to 3.3V instead of 1.8V. However, this changed also affected LED light status:

ROCK64 V2	Power On	100Mbps	1000Mbps
Green Light:	On	Flashing	On
Orange Light:	Off	Off	Flashing

ROCK64 V3	Power On	100Mbps	1000Mbps
Green Light:	Off	Flashing	Off
Orange Light:	On	On	Flashing

Rock64 V3 Definition ver3.0

Pi-2 Connector

	3.3V	1	2	5V	
	GPIO2_D1 (I2C0_SDA)	3	4	5V	
	GPIO2_D0 (I2C0_SCL)	5	6	GND	
	GPIO1_D4 (CLK32KOUT_M1)	7	8	GPIO2_A0 (UART2_TX_M1)	
	GND	9	10	GPIO2_A1 (UART2_RX_M1)	
[IR_RX]	GPIO2_A2	11	12	GPIO2_C2 (I2S1_SCLK)	
	GPIO0_A0	13	14	GND	
[UART1_TX]	GPIO3_A4	15	16	GPIO3_A5	[UART1_RTS]
	3.3V	17	18	GPIO3_A6	[UART1_RX]
	GPIO3_A1 (SPI_TXD_M2)	19	20	GND	
	GPIO3_A2 (SPI_RXD_M2)	21	22	GPIO3_A7	[UART1_CTS]
	GPIO3_A0 (SPI_CLK_M2)	23	24	GPIO3_B0 (SPI_CSN0_M2)	
	GND	25	26	GPIO2_B4 (SPI_CSN1_M0)	
[PWM0]	GPIO2_A4 (I2C1_SDA)	27	28	GPIO2_A5 (I2C1_SCL)	[PWM1]
	GPIO2_A3	29	30	GND	
	GPIO0_A2	31	32	GPIO2_C6 (I2S1_SDIO3)	
	GPIO2_C5 (I2S1_SDIO2)	33	34	GND	
	GPIO2_C1 (I2S1_LRCKTX)	35	36	GPIO2_C4 (I2S1_SDIO1)	
	GPIO2_C0 (I2S1_LRCKRX)	37	38	GPIO2_C3 (I2S1_SDI)	
	GND	39	40	GPIO2_C7 (I2S1_SDO)	

Note: [xxx] is secondary function

Pi-5+ Connector ver3.0

3.3V	1	2	5V
GPIO2_C1 (I2S1_LRCKTX)	3	4	GPIO2_C2 (I2S1_SCLK)
GPIO2_C7 (I2S1_SDO)	5	6	GPIO2_C3 (I2S1_SDI)
GND	7	8	GND
GPIO2_C0 (I2S1_LRCKRX)	9	10	GPIO2_B7 (I2S1_MCLK)
GPIO2_C5 (I2S1_SDIO2)	11	12	GPIO2_C4 (I2S1_SDIO1)
GPIO0_D3 (SPDIF_TX_M0)	13	14	GPIO2_C6 (I2S1_SDIO3)
GND	15	16	GND
Ethernet RD+	17	18	Ethernet RD-
Ethernet TX+	19	20	Ethernet TX-
RESET	21	22	PWRON