

2.5 Ball Pin Number Order

Table 2-1 RK3368 Ball Pin Number Order Information

A1	GPIO1_C0/I2C3_SCL/SPI1_RXD	B1	GPIO1_B6/CIF_D10/SPI1_CLK
A2	DDR_DM3	B2	DDR_DQ24
A3	NP	B3	DDR_DQ25
A4	DDR_DQS3N	B4	DDR_DQS3
A5	DDR_DQ31	B5	DDR_DQ30
A6	NP	B6	DDR_DQ10
A7	DDR_DQS1N	B7	DDR_DQS1
A8	DDR_CS0N	B8	DDR_CKE1
A9	NP	B9	DDR_CS1N
A10	DDR_RASN	B10	DDR_CASN
A11	DDR_A0	B11	DDR_BA2
A12	NP	B12	DDR_A2
A13	DDR_CLKN	B13	DDR_CLK
A14	DDR_A5	B14	DDR_A6
A15	NP	B15	DDR_A11
A16	DDR_A15	B16	DDR_A14
A17	DDR_DQ18	B17	DDR_DQ17
A18	NP	B18	DDR_DQ21
A19	DDR_DQS2N	B19	DDR_DQS2
A20	DDR_DQ19	B20	DDR_DQ22
A21	NP	B21	DDR_DQ23
A22	DDR_DQS0N	B22	DDR_DQS0
A23	DDR_DQ4	B23	DDR_DQ5
C1	NP	D1	GPIO1_A6/CIF_D8/TS_D6
C2	VSS	D2	GPIO1_A7/CIF_D9/TS_D7
C3	DDR_DQ26	D3	GPIO1_B5/CIF_D1
C4	DDR_DQ27	D4	VSS
C5	DDR_DQ29	D5	DDR_DQ28
C6	DDR_DQ9	D6	DDR_DQ8
C7	DDR_DQ12	D7	VSS
C8	DDR_DQ15	D8	DDR_DQ14
C9	DDR_CKE0	D9	NP
C10	DDR_WEN	D10	VSS
C11	DDR_BA1	D11	DDR_BA0
C12	DDR_A1	D12	NP
C13	DDR_A4	D13	VSS
C14	DDR_A7	D14	DDR_A8
C15	DDR_A10	D15	NP
C16	DDR_A13	D16	VSS
C17	DDR_ODT1	D17	DDR_ODT0
C18	DDR_DQ16	D18	DDR_A12
C19	DDR_DQ20	D19	VSS
C20	DDR_DM2	D20	DDR_DM0

C21	VSS	D21	DDR_DQ1
C22	DDR_DQ2	D22	DDR_DQ3
C23	NP	D23	DDR_DQ6
E1	GPIO1_B0/CIF_VSYNC/TS_SYNC	F1	NP
E2	GPIO1_A4/CIF_D6/TS_D4	F2	VSS
E3	GPIO1_B4/CIF_D0	F3	GPIO1_A5/CIF_D7/TS_D5
E4	GPIO1_C1/I2C3_SDA/SPI1_TXD	F4	GPIO1_B1/CIF_HREF/TS_VALID
E5	NP	F5	GPIO1_B7/CIF_D11/SPI1_CSN0
E6	DDR_DM1	F6	NP
E7	DDR_DQ11	F7	DDR_VDD
E8	DDR_DQ13	F8	DDR_VDD
E9	NP	F9	NP
E10	DDR_RETEN_IN	F10	DDR_VDD
E11	DDR_RESETN	F11	DDR_VDD
E12	NP	F12	NP
E13	DDR_A3	F13	DDR_VDD
E14	DDR_A9	F14	DDR_VDD
E15	NP	F15	NP
E16	DDR_VDD	F16	DDR_VDD
E17	DDR_VDD	F17	DDR_VDD
E18	LOGIC_VDD	F18	NP
E19	NP	F19	GPIO2_C1/I2S_SDO1/PCM_OUT
E20	GPIO3_D7/SC_VCC18V/I2C2_SDA/GPUJTAG_T CK	F20	GPIO0_B1/SC_VCC33V/I2C2_SCL/GPUJTAG_TRS TN
E21	VSS	F21	GPIO0_B2/SC_RST/SPI2_RXD/GPUJTAG_TMS
E22	DDR_DQ0	F22	GPIO0_B5/SC_DETECT/SPI2_CSN0
E23	DDR_DQ7	F23	NP
G1	MIPI_CSI_DP0	H1	MIPI_CSI_DP1
G2	MIPI_CSI_DN0	H2	MIPI_CSI_DN1
G3	GPIO1_A2/CIF_D4/TS_D2	H3	AVSS
G4	GPIO1_A3/CIF_D5/TS_D3	H4	GPIO1_A0/CIF_D2/TS_D0
G5	GPIO1_B3/CIF_CLKOUT/TS_FAIL	H5	GPIO1_A1/CIF_D3/TS_D1
G6	GPIO1_B2/CIF_CLKIN/TS_CLK	H6	MIPI_CSI_RBIAS
G7	NP	H7	DVPIO_VDD
G8	LOGIC_VDD	H8	VSS
G9	VSS	H9	VSS
G10	LOGIC_VDD	H10	VSS
G11	VSS	H11	VSS
G12	LOGIC_VDD	H12	VSS
G13	DDRPLL_VDD_1V0	H13	VSS
G14	LOGIC_VDD	H14	VSS
G15	VSS	H15	VSS
G16	LOGIC_VDD	H16	VSS
G17	NP	H17	APIO3_VDD
G18	APIO4_VDD	H18	GPIO2_D3/UART0_RTSEN

G19	GPIO2_C5/I2C1_SDA	H19	GPIO3_A7
G20	GPIO2_C6/I2C1_SCL	H20	GPIO2_B7/I2S_SDI
G21	GPIO0_B3/SC_CLK/SPI2_TXD/GPUJTAG_TDI	H21	GPIO2_C3/I2S_SDO3/PCM_IN
G22	GPIO0_B4/SC_IO/SPI2_CLK/GPUJTAG_TDO	H22	GPIO2_C0/I2S_SDO0
G23	GPIO2_C7/SPDIF_TX/EDP_HPDP	H23	GPIO2_C4/I2S_CLK
J1	NP	K1	MIPI_CSI_DP2
J2	MIPI_CSI_CLKP	K2	MIPI_CSI_DN2
J3	MIPI_CSI_CLKN	K3	AVSS
J4	NP	K4	LVDS/MIPI_AVDD_1V8
J5	NP	K5	LVDS/MIPI_AVDD_1V0
J6	NP	K6	MIPI_DSI_RBIA
J7	MIPI_CSI_AVDD_1V0	K7	LVDS/MIPI_AVDD_3V3
J8	VSS	K8	VSS
J9	VSS	K9	VSS
J10	VSS	K10	VSS
J11	VSS	K11	VSS
J12	VSS	K12	VSS
J13	VSS	K13	VSS
J14	VSS	K14	VSS
J15	VSS	K15	VSS
J16	VSS	K16	VSS
J17	LOGIC_VDD	K17	APIO2_VDD
J18	NP	K18	GPIO2_B4/I2S_SCLK
J19	NP	K19	GPIO2_D1/UART0_TX
J20	NP	K20	GPIO3_A6/SDIO0_INTN
J21	GPIO2_B6/I2S_LRCK_TX	K21	GPIO2_D2/UART0_CTSN
J22	GPIO2_C2/I2S_SDO2/PCM_CLK	K22	GPIO2_D0/UART0_RX
J23	NP	K23	GPIO2_B5/I2S_LRCK_RX/PCM_SYNC
L1	MIPI_CSI_DP3	M1	NP
L2	MIPI_CSI_DN3	M2	MIPI_DSI_DN0/LCDC_D9/LVDS_DN0
L3	AVSS	M3	MIPI_DSI_DP0/LCDC_D8/LVDS_DP0
L4	EDP_AVDD_1V0	M4	NP
L5	EDP_RBIA	M5	NP
L6	EDP_AVDD_1V8	M6	NP
L7	EDP_CLKI_24M	M7	EDP_DC_TP
L8	VSS	M8	VSS
L9	VSS	M9	VSS
L10	VSS	M10	VSS
L11	VSS	M11	VSS
L12	VSS	M12	VSS
L13	VSS	M13	VSS
L14	VSS	M14	VSS
L15	VSS	M15	VSS
L16	VSS	M16	VSS
L17	GPIO3_A4/SDIO0_PWREN	M17	LOGIC_VDD

L18	GPIO3_A2/SDIO0_DETECTN	M18	NP
L19	GPIO3_A1/SDIO0_CLKOUT	M19	NP
L20	GPIO2_D7/SDIO0_D3	M20	NP
L21	GPIO3_A0/SDIO0_CMD	M21	GPIO2_B3/SDMMC0_DECTN
L22	GPIO3_A3/SDIO0_WRPRT	M22	GPIO2_D4/SDIO0_D0
L23	GPIO3_A5/SDIO0_BKPWR	M23	NP
N1	MIPI_DSI_DN1/LCDC_D7/LVDS_DN1	P1	MIPI_DSI_CLKN/LCDC_D5/LVDS_CLKN
N2	MIPI_DSI_DP1/LCDC_D6/LVDS_DP1	P2	MIPI_DSI_CLKP/LCDC_D4/LVDS_CLKP
N3	AVSS	P3	VSS
N4	HDMI_HPD	P4	GPIO0_C3/LCDC_D15/TRACE_D5/M3JTAG_TDO
N5	HDMI_RBIAS	P5	GPIO0_C0/LCDC_D12/TRACE_D2/JTAG_TDO
N6	HDMI_AVDD_1V8	P6	GPIO0_C1/LCDC_D13/TRACE_D3/M3JTAG_TRST N
N7	HDMI_AVDD_1V0	P7	TEST
N8	VSS	P8	VSS
N9	VSS	P9	VSS
N10	VSS	P10	VSS
N11	VSS	P11	VSS
N12	VSS	P12	VSS
N13	VSS	P13	VSS
N14	VSS	P14	VSS
N15	VSS	P15	VSS
N16	VSS	P16	VSS
N17	APIO1_VDD	P17	USB_AVDD_3V3
N18	GPIO3_D0/MAC_MDIO/I2C4_SDA	P18	GPIO2_A5/SDMMC0_D0/UART2_TX
N19	GPIO2_B2/SDMMC0_CMD/M3JTAG_TMS	P19	GPIO3_D5/IR_RX/UART3_RX
N20	GPIO2_D5/SDIO0_D1	P20	VSS
N21	SDMMC_VDD	P21	GPIO3_C5/MAC_RXER/ISP_PRELIGHTTRIG
N22	GPIO2_B1/SDMMC0_CLKOUT/M3JTAG_TCK	P22	GPIO2_A6/SDMMC0_D1/UART2_RX
N23	GPIO2_D6/SDIO0_D2	P23	GPIO2_B0/SDMMC0_D3/JTAG_TMS
R1	NP	T1	MIPI_DSI_DN3/LCDC_D0/LVDS_DN3
R2	MIPI_DSI_DN2/LCDC_D2/LVDS_DN2	T2	MIPI_DSI_DP3/LCDC_D1/LVDS_DP3
R3	MIPI_DSI_DP2/LCDC_D3/LVDS_DP2	T3	AVSS
R4	NP	T4	LCDC_VDD
R5	NP	T5	LCDC_VDD
R6	NP	T6	PMUIO_VDD
R7	PMU_VDD_1V0	T7	ADC_AVDD_1V8
R8	VSS	T8	VSS
R9	VSS	T9	VSS
R10	VSS	T10	VSS
R11	VSS	T11	VSS
R12	VSS	T12	VSS
R13	VSS	T13	VSS
R14	VSS	T14	VSS
R15	VSS	T15	VSS

R16	VSS	T16	CPU_VDD
R17	USB_RBIAS	T17	LOGIC_VDD
R18	NP	T18	GPIO3_B0/MAC_TXD0/PWM0/VOP_PWM
R19	NP	T19	GPIO3_B6/MAC_TXD3/GPS_MAG
R20	NP	T20	GPIO3_B2/MAC_TXD2
R21	GPIO3_D6/IR_TX/UART3_TX/PWM_3	T21	GPIO3_C1/MAC_RXD2/UART3_RTSN/USB_DRVVBUS0
R22	GPIO2_A7/SDMMC0_D2/JTAG_TCK	T22	GPIO3_D2/HDMI_I2C_SDA/I2C5_SDA
R23	NP	T23	GPIO3_D3/HDMI_I2C_SCL/I2C5_SCL
U1	EDP_TX0P	V1	NP
U2	EDP_TX0N	V2	EDP_TX1P
U3	VSS	V3	EDP_TX1N
U4	GPIO0_B6/LCDC_D10/TRACE_D0/JTAG_TRSTN	V4	GPIO0_B7/LCDC_D11/TRACE_D1/JTAG_TDI
U5	GPIO0_C4/LCDC_D16/TRACE_D6/UART1_RX	V5	GPIO0_C6/LCDC_D18/TRACE_D8/UART1_CTSN
U6	GPIO0_D0/LCDC_D20/TRACE_D10/UART4_CTSN	V6	NP
U7	NP	V7	G/NPLL_AVSS
U8	APLL_AVSS	V8	C/DPLL_AVSS
U9	CPU_VDD	V9	NP
U10	CPU_VDD	V10	CPU_VDD
U11	CPU_VDD	V11	CPU_VDD
U12	CPU_VDD	V12	NP
U13	CPU_VDD	V13	CPU_VDD
U14	CPU_VDD	V14	CPU_VDD
U15	CPU_VDD	V15	NP
U16	CPU_VDD	V16	CPU_VDD
U17	NP	V17	FLASH_VDD
U18	GPIO3_D1/MAC_RXCLKIN/I2C4_SCL	V18	NP
U19	GPIO3_B1/MAC_TXD1	V19	GPIO3_B5/MAC_TXEN
U20	VSS	V20	USB_AVDD_1V8
U21	GPIO3_C0/MAC_RXD1/UART3_CTSN/GPS_RFCLK	V21	USB_AVDD_1V0
U22	GPIO3_C3/MAC_MDC/ISP_SHUTTEREN	V22	GPIO3_B3/MAC_CRS
U23	GPIO3_C7/EDPHDMI_CEC/ISP_FLASHTRIGIN	V23	NP
W1	EDP_TX2P	Y1	EDP_TX3P
W2	EDP_TX2N	Y2	EDP_TX3N
W3	AVSS	Y3	VSS
W4	GPIO0_C2/LCDC_D14/TRACE_D4/M3JTAG_TDI	Y4	GPIO0_C5/LCDC_D17/TRACE_D7/UART1_TX
W5	NP	Y5	GPIO0_D2/LCDC_D22/TRACE_D12/UART4_TX
W6	GPIO0_D4/LCDC_HSYNC/TRACE_D14/PMU_DEBUG2	Y6	GPIO0_C7/LCDC_D19/TRACE_D9/UART1_RTSN
W7	C/DPLL_AVDD_1V0	Y7	GPIO0_D3/LCDC_D23/TRACE_D13/UART4_RX
W8	G/NPLL_AVDD_1V0	Y8	APLL_AVDD_1V0
W9	NP	Y9	NP
W10	CPU_VDD	Y10	EFUSE_VQPS
W11	CPU_VDD	Y11	GPIO0_A7/I2C0_SCL

W12	NP	Y12	NP
W13	CPU_VDD	Y13	CPU_VDD
W14	CPU_VDD	Y14	CPU_VDD
W15	NP	Y15	NP
W16	CPU_VDD	Y16	GPIO2_A3/FLASH_CSN3/EMMC_RSTNOUT
W17	GPIO1_D5/FLASH_ALE/SPI0_CLK	Y17	GPIO1_D7/FLASH_WRN/SFC_CSN0
W18	GPIO1_C5/FLASH_D3/EMMC_D3/SFC_SIO3	Y18	GPIO1_C6/FLASH_D4/EMMC_D4/SPI0_RXD
W19	NP	Y19	GPIO1_D0/FLASH_D6/EMMC_D6/SPI0_CSN0
W20	GPIO3_D4/MAC_TX_CLKO/SPI1_CSN1	Y20	USB0_ID
W21	GPIO3_C6/MAC_CLK/ISP_SHUTTERTRIG	Y21	HSIC_AVDD_1V2
W22	GPIO3_C4/MAC_RXDV/ISP_FLASHTRIGOUT	Y22	VSS
W23	GPIO3_B4/MAC_COL	Y23	GPIO3_C2/MAC_RXD3/USB_DRVVBUS1
AA1	NP	AB1	HDMI_TCP
AA2	EDP_AUXP	AB2	HDMI_TX0P
AA3	EDP_AUXN	AB3	AVSS
AA4	VSS	AB4	HDMI_TX1P
AA5	AVSS	AB5	HDMI_TX2P
AA6	GPIO0_D1/LCDC_D21/TRACE_D11/UART4_RTS N	AB6	VSS
AA7	GPIO0_D7/LCDC_DCLK/TRACE_CTL/PMU_DEBU G5	AB7	GPIO0_D6/LCDC_DEN/TRACE_CLK/PMU_DEBUG 4
AA8	GPIO0_A4	AB8	GPIO0_A2
AA9	CLK32K/PWM2	AB9	VSS
AA10	VSS	AB10	OSC_24M_OUT
AA11	ADC_IN0	AB11	ADC_IN2
AA12	GPIO0_A1	AB12	DDR_RETEN_OUT
AA13	GPIO0_A6/I2C0_SDA	AB13	GPIO0_A5
AA14	GPIO2_A1/FLASH_CSN1	AB14	GPIO0_A3/OTP_OUT/PMU_DEBUG0
AA15	GPIO2_A4/FLASH_DQS/EMMC_CLKOUT	AB15	GPIO2_A2/FLASH_CSN2
AA16	GPIO2_A0/FLASH_CSN0	AB16	GPIO1_D3/FLASH_WP/EMMC_PWREN
AA17	GPIO1_C3/FLASH_D1/EMMC_D1/SFC_SIO1	AB17	GPIO1_D4/FLASH_RDN/SFC_CSN1
AA18	GPIO1_C4/FLASH_D2/EMMC_D2/SFC_SIO2	AB18	GPIO1_C2/FLASH_D0/EMMC_D0/SFC_SIO0
AA19	GPIO1_D1/FLASH_D7/EMMC_D7/SPI0_CSN1	AB19	GPIO3_B7/MAC_RXD0/GPS_SIG
AA20	USB_AVSS	AB20	HSIC_DATA
AA21	USB_VBUS	AB21	USB_AVSS
AA22	USB_AVSS	AB22	USB0_DP
AA23	NP	AB23	USB1_DP
AC1	HDMI_TCN		
AC2	HDMI_TX0N		
AC3	NP		
AC4	NP		
AC5	HDMI_TX2N		
AC6	NP		
AC7	GPIO0_D5/LCDC_VSYNC/TRACE_D15/PMU_DEB UG3		
AC8	NPOR		

AC9	NP		
AC10	OSC_24M_IN		
AC11	ADC_IN1		
AC12	NP		
AC13	GPIO0_B0/TEST_CLKOUT/PWM_1/PMU_DEBUG 1		
AC14	GPIO0_A0/GLOBAL_PWROFF/PMIC_SLEEP		
AC15	NP		
AC16	GPIO1_D2/FLASH_RDY/EMMC_CMD/SFC_CLK		
AC17	GPIO1_D6/FLASH_CLE		
AC18	NP		
AC19	GPIO1_C7/FLASH_D5/EMMC_D5/SPI0_TXD		
AC20	HSIC_STROBE		
AC21	NP		
AC22	USB0_DM		
AC23	USB1_DM		

2.6 Power/ground IO descriptions

Table 2-2 RK3368 Power/Ground IO information

Group	Ball #	Descriptions
VSS	AA10 AA4 AB6 AB9 C2 C21 D10 D13 D16 D19 D4 D7 E21 F2 G11 G15 G9 H10 H11 H12 H13 H14 H15 H16 H8 H9 J10 J11 J12 J13 J14 J15 J16 J8 J9 K10 K11 K12 K13 K14 K15 K16 K8 K9 L10 L11 L12 L13 L14 L15 L16 L8 L9 M10 M11 M12 M13 M14 M15 M16 M8 M9 N10 N11 N12 N13 N14 N15 N16 N8 N9 P10 P11 P12 P13 P14 P15 P16 P20 P3 P8 P9 R10 R11 R12 R13 R14 R15 R16 R8 R9 T10 T11 T12 T13 T14 T15 T8 T9 U20 U3 Y22 Y3	Internal Logic Ground and Digital IO Ground
CPU_VDD	T16 U10 U11 U12 U13 U14 U15 U16 U9 V10 V11 V13 V14 V16 W10 W11 W13 W14 W16 Y13 Y14	Internal CPU Power (@ cpu frequency <= 900MHz) Internal CPU Power (@ cpu frequency <= 1.5GHz)
LOGIC_VDD	E18 G10 G12 G14 G16 G8 J17 M17 T17	Internal Logic Power
DDR_VDD	E16 E17 F10 F11 F13 F14 F16 F17 F7 F8	DDR3 Digital IO Power LPDDR2 Digital IO Power
DDRPLL_VDD_1V0	G13	DDR PHY PLL power
PMU_VDD_1V0	R7	Internal PMU Domain Logic Power
PMUIO_VDD	T6	PMU Domain Digital IO Power
APIO1_VDD	N17	GPIO30 Digital IO Power
APIO2_VDD	K17	GPIO1830 Digital IO Power
LCDC_VDD	T4 T5	LCDC Digital IO Power
DVPIO_VDD	H7	DVP Digital IO Power
FLASH_VDD	V17	Nand Flash0 Digital IO Power
SDMMC_VDD	N21	SDMMC0 Digital IO Power