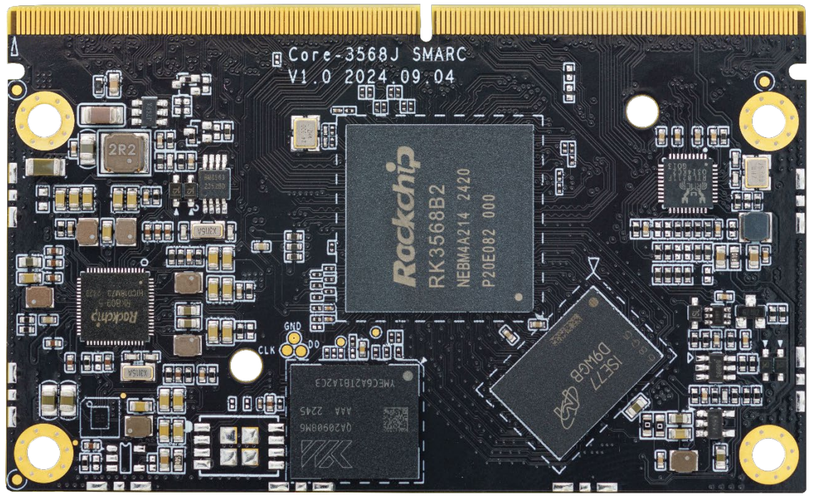
Core-3568J SMARC

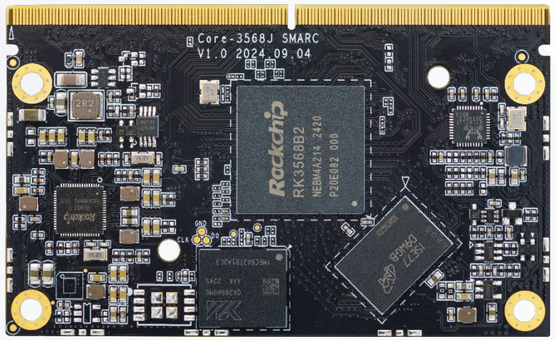
Quad-core SMARC standard AI Core board



V1.0 2024-11-7

T-CHIP INTELLIGENCE TECHNOLOGY

Product features



Quad-core 64-bit processor

The quad-core 64-bit Cortex-A55 processor is RK3568B2, using 22nm advanced technology, with a frequency of up to 2.0GHz, low power consumption and high performance.

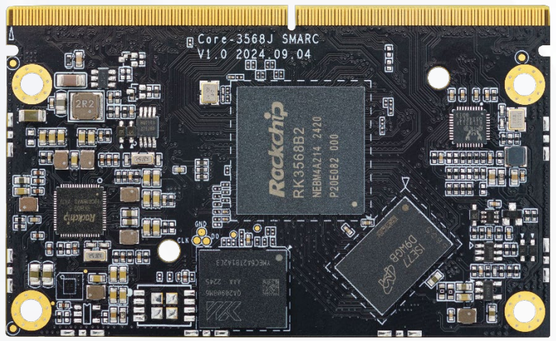
8GB LPDDR4 large memory

Up to 8GB LPDDR4 RAM, faster response time to meet the needs of product applications with high memory requirements and large storage capacity.

4K HDR H.265 video decoding

Support OpenGL ES3.2/2.0, Vulkan1.1
Support 4K@60fps H.265/VP9 video decoding, 1080P@100fps H.265 video encoding
1TOPs computing power NPU

Product features



SMARC standard interface

Using SMARC standard, 314P MXM3.0 gold finger interface, credit card size, saving more space. It simplifies the design and manufacturing of high-performance equipment, and enables rapid project development and production.

Efficient secondary development

Provide complete technical data and reference design, users can efficiently carry out secondary development, and quickly create independent and controllable products.

Wide range of applications

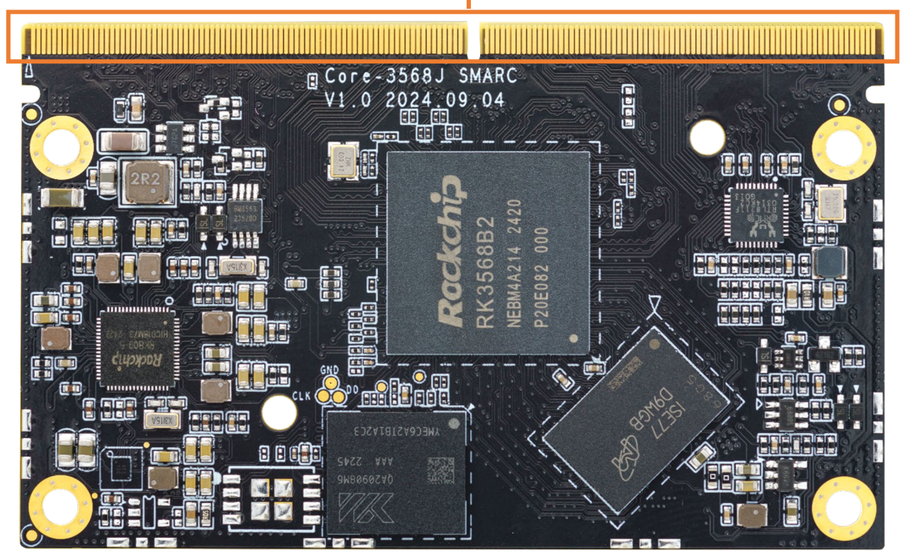
It is widely used in scenarios such as smart NVR, cloud terminal, IoT gateway, industrial control, edge computing, face recognition turnstile, NAS, and vehicle central control.

Specifications

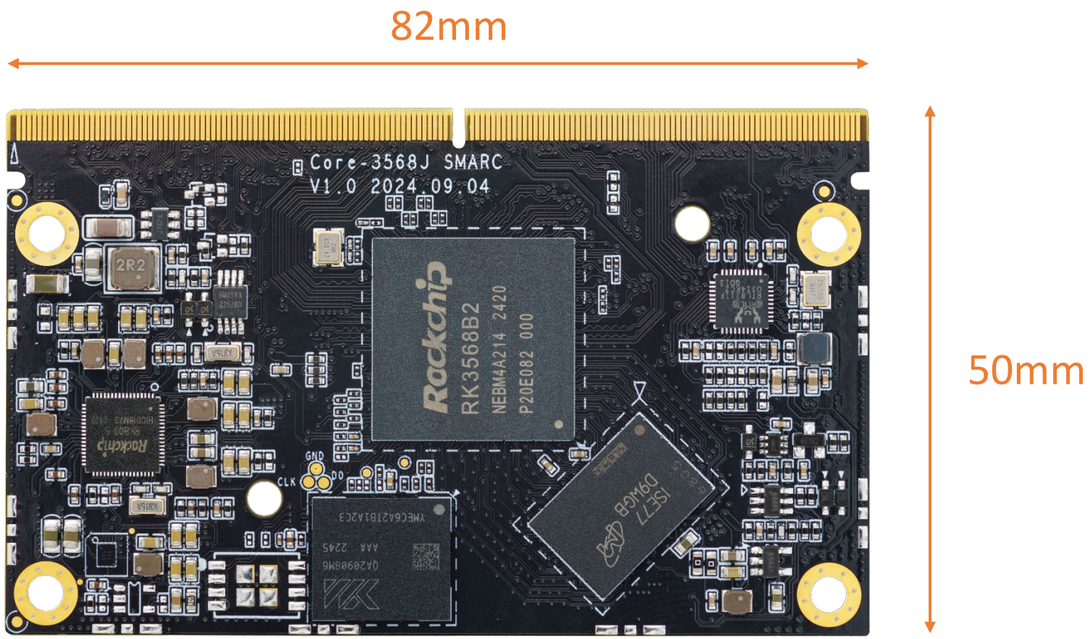
Specifications		
Basic Specifications	SOC	RK3568B2
	CPU	Quad-core 64-bit Cortex-A55 processor, 22nm lithography process, up to 2.0GHz
	GPU	ARM G52 2EE graphics processor, supports OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1
	NPU	1Tops@INT8, RKNN NPU AI accelerators, supports one-click conversion of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet architecture models
	VPU	4K@60fps H.265/H.264/VP9 video decoding, 1080P@60fps H.265/H.264 video encoding
	RAM	2GB LPDDR4 (4GB/8GB optional)
	Storage	32GB eMMC (64GB/128GB optional)
	Power	5V (voltage tolerance ±5%)
	System	Ubuntu, Android
	Interface	SMARC standard (314Pin MXM3.0 interface)
	Size	82 mm × 50 mm
	Weight	≈19g
	Environment	Operating Temperature: -20℃ ~ 60℃, storage temperature: -20℃ ~ 70℃, Storage Humidity: 10% ~ 90%RH (non-condensing)
Interface Specifications	Ethernet	1 × Gigabit Ethernet (1000Mbps)
	WiFi	The "WiFi + Bluetooth" module (2.4GHz/5GHz dual-band WiFi6, Bluetooth 5.0) can be expanded through the SDIO interface, supporting the expansion of 5G/4G LTE wireless networks
	Video output	1 × HDMI2.0 (4K@60fps) 2 × MIPI-DSI (4Lanes, support single-channel 1920×1080@60fps output or dual-channel 2560×1440@60fps output) 1 × LVDS (single channel 1280×800@60fps or dual channel 1920 ×1080@60fps, one channel multiplexed with MIPI-DSI0 channel)
	Camera	1 × MIPI-CSI (1 × 4 Lanes or 2 × 2 Lanes)
	PCIe	1 × PCIe 3.0 (2 Lanes), 1 × PCIe 2.1 (1 Lane)
	SATA	3 × SATA3.0 (support eSATA)
	USB	1 × USB3.0 HOST, 1 × USB3.0 OTG, 2 × USB2.0 HOST
	Other	3 × SDMMC, 4 × SPI, 10 × UART, 6 × I2C, 2 × I2S/PCM, 16 × PWM, 5 × ADC, 3 × CAN, GPIOs

Interface description

SMARC Standard interface(314Pin MXM3.0, 0.5mm Pitch)



Dimension


82mm
50mm
Core-3568J SMARC
V1.0 2024.09.04
Rockchip
RK3568B2
NEBM4A214 2420
P20E082 000

Interface definition

① : Pad types: I = input, O = output, I/O = input/output (bidirectional), G= Ground ,
P = power supply , DOWN = Internal pull down , UP = Internal pull UP L = Lowe Level H = High level”

SC PIN	PIN	CORE-3568J SMARC Core board pin definition	Pad type	IO Pull	IO Power domain	RK3568 Pin Number	Function for Mainboard (MB-CORE-3568J-SMARC)	Defual function description
S158	1	GND	G				GND	GND
S157	3	LCDC_D13/VOP_BT1120_CLK/GMAC1_TXCLK_M0/I2S3_SDI_M0/SDMMC2_CLK_M1/GPIO3_A6_D	I/O	DOWN	1.8V	AG3	GPIO3_A6	
S156	5	LCDC_D22/PWM12_M0/GMAC1_TXEN_M0/UART3_TX_M1/PDM_SDI2_M2/GPIO3_B7_d	I/O	DOWN	1.8V	AD4	GPIO3_B7	
S155	7	SARADC_VIN0_KEY/RECOVERY	I		1.8V	B27	SARADC_VIN0_KEY/RECOVERY	ADC0/Recovery Input Core board Pull up resistance 10K
S154	9	LCDC_D9/VOP_BT1120_D1/GMAC1_TXD2_M0/I2S3_MCLK_M0/SDMMC2_D1_M1/GPIO3_A2_d	I/O	DOWN	1.8V	AE5	GPIO3_A2	
S153	11	LCDC_D15/VOP_BT1120_D6/ETH1_REFCLKO_25M_M0/SDMMC2_PWREN_M1/GPIO3_B0_d	I/O	DOWN	1.8V	AG2	GPIO3_B0	
S152	13	LCDC_D3/VOP_BT656_D3_M0/SPI0_CLK_M1/PCIE30X1_WAKEn_M1/I2S1_SDI0_M2/GPIO2_D3_d	I/O	DOWN	1.8V	AC7	GPIO2_D3	
S151	15	LCDC_D10/VOP_BT1120_D2/GMAC1_TXD3_M0/I2S3_SCLK_M0/SDMMC2_D2_M1/GPIO3_A3_d	I/O	DOWN	1.8V	AG4	GPIO3_A3	
S150	17	PWM15_IR_M0/SPDIF_TX_M1/GMAC1_MDIO_M0/UART7_RX_M1/I2S1_LRCK_RX_M2/GPIO3_C5_d	I/O	DOWN	1.8V	AC2	GPIO3_C5	
S149	19	LCDC_D11/VOP_BT1120_D3/GMAC1_RXD2_M0/I2S3_LRCK_M0/SDMMC2_D3_M1/GPIO3_A4_d	I/O	DOWN	1.8V	AF4	GPIO3_A4	
S148	21	LCDC_D12/VOP_BT1120_D4/GMAC1_RXD3_M0/I2S3_SDO_M0/SDMMC2_CMD_M1/GPIO3_A5_d	I/O	DOWN	1.8V	AH3	GPIO3_A5	
S147	23	VCC_RTC	P		1.8V~5.0V		VCC_RTC	VCC_RTC Input
S146	25	PWM6/SPI0_MISO_M0/PCIE30X2_WAKEN_M0/GPIO0_C5_D	I/O	DOWN	3.3V	AC21	PCIE30X2_WAKEn_M0	PCIE30X2_WAKEn_M0
S145	27	WDT_OUT	O		1.8V		WDT_OUT	WatchDog Ouput, Active L
S144	29	NC					NC	NC
S143	31	GND	G				GND	GND

Interface definition

S142	33	NC					NC	NC
S141	35	PWM12_M1/SPI3_MISO_M1/SATA1_ACT_LED/UART9_TX_M1/I2S3_SDO_M1/GPIO4_C5_d	I/O	DOWN	1.8V	AD8	PWM12_M1	PWM12_M1
S140	37	I2C1_SDA/CAN0_RX_M0/PCIE20_BUTTONRSTn/MCU_JTAG_TCK/GPIO0_B4_u	I/O	UP	1.8V	AB20	I2C1_SDA_1V8	I2C1_SDA_1V8 Core board Pull up resistance 2.2K
S139	39	I2C1_SCL/CAN0_TX_M0/PCIE30X1_BUTTONRSTn/MCU_JTAG_TDO/GPIO0_B3_u	I/O	UP	1.8V	AG24	I2C1_SCL_1V8	I2C1_SCL_1V8 Core board Pull up resistance 2.2K
S138	41	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	O		-	AG13	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N
S137	43	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	O		-	AH13	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P
S136	45	GND	G				GND	GND
S135	47	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	O		-	AG15	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN
S134	49	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	O		-	AH15	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP
S133	51	CAM_CLKOUT0/EBC_SDCE1/GMAC1_RXD0_M1/SPI3_CS1_M0/I2S1_LRCK_RX_M1/GPIO4_A7_d	I/O	DOWN	1.8V	W1	GPIO4_A7	GPIO4_A7
S132	53	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	O		-	AG14	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N
S131	55	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	O		-	AH14	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P
S130	57	GND	G				GND	GND
S129	59	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	O		-	AG16	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	
S128	61	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	O		-	AH16	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P
S127	63	ISP_FLASHTRIGOUT/EBC_SDCE0/GMAC1_TXEN_M1/SPI3_CS0_M0/I2S1_SCLK_RX_M1/GPIO4_A6_d	I/O	DOWN	1.8V	W2	GPIO4_A6	GPIO4_A6
S126	65	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	O		-	AG17	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N
S125	67	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	O		-	AH17	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P
S124	69	GND	G				GND	GND

Interface definition

S123	71	NC					NC	NC
S122	73	LCDC_D23/PWM13_M0/GMAC1_MCLKINOUT_M0/UART3_RX_M1/PDM_SDI3_M2/GPIO3_C0_d	I/O	DOWN	1.8V	AD2	PWM13_M0	PWM13_M0
S121	75	MIPI_DSI_TX1_D3N	O		-	AE12	MIPI_DSI_TX1_D3N/LVDS_TX1_D3N	MIPI_DSI_TX1_D3N/LVDS_TX1_D3N
S120	77	MIPI_DSI_TX1_D3P	O		-	AD12	MIPI_DSI_TX1_D3P/LVDS_TX1_D3P	MIPI_DSI_TX1_D3P/LVDS_TX1_D3P
S119	79	GND	G				GND	GND
S118	81	MIPI_DSI_TX1_D2N	O		-	AC14	MIPI_DSI_TX1_D2N/LVDS_TX1_D2N	MIPI_DSI_TX1_D2N/LVDS_TX1_D2N
S117	83	MIPI_DSI_TX1_D2P	O		-	AD14	MIPI_DSI_TX1_D2P/LVDS_TX1_D2P	MIPI_DSI_TX1_D2P/LVDS_TX1_D2P
S116	85	GPIO0_D4_d	I/O	DOWN	1.8V	AB23	GPIO0_D4	GPIO0_D4
S115	87	MIPI_DSI_TX1_D1N	O		-	AC17	MIPI_DSI_TX1_D1N/LVDS_TX1_D1N	MIPI_DSI_TX1_D1N/LVDS_TX1_D1N
S114	89	MIPI_DSI_TX1_D1P	O		-	AD17	MIPI_DSI_TX1_D1P/LVDS_TX1_D1P	MIPI_DSI_TX1_D1P/LVDS_TX1_D1P
S113	91	NC					NC	NC
S112	93	MIPI_DSI_TX1_D0N	O		-	AE18	MIPI_DSI_TX1_D0N/LVDS_TX1_D0N	MIPI_DSI_TX1_D0N/LVDS_TX1_D0N
S111	95	MIPI_DSI_TX1_D0P	O		-	AD18	MIPI_DSI_TX1_D0P/LVDS_TX1_D0P	MIPI_DSI_TX1_D0P/LVDS_TX1_D0P
S110	97	GND	G				GND	GND
S109	99	MIPI_DSI_TX1_CLKN	O		-	AE15	MIPI_DSI_TX1_CLKN/LVDS_TX1_CLKN	MIPI_DSI_TX1_CLKN/LVDS_TX1_CLKN
S108	101	MIPI_DSI_TX1_CLKP	O		-	AD15	MIPI_DSI_TX1_CLKP/LVDS_TX1_CLKP	MIPI_DSI_TX1_CLKP/LVDS_TX1_CLKP
S107	103	GPIO0_D5_d	I/O	DOWN	1.8V	AD25	GPIO0_D5	GPIO0_D5
S106	105	NC					NC	NC
S105	107	NC					NC	NC
S104	109	NC					NC	NC

Interface definition

S103	111	NC					NC	NC
S102	113	NC					NC	NC
S101	115	GND	G				GND	GND
S100	117	NC					NC	NC
S99	119	NC					NC	NC
S98	121	NC					NC	NC
S97	123	NC					NC	NC
S96	125	NC					NC	NC
S95	127	NC					NC	NC
S94	129	NC					NC	NC
S93	131	NC					NC	NC
S92	133	GND	G				GND	GND
S91	135	PCIE30_TX0P	O		-	AA28	PCIE30_TX0P	PCIE30_TX0P
S90	137	PCIE30_TX0N	O		-	AA27	PCIE30_TX0N	PCIE30_TX0N
S89	139	GND	G				GND	GND
S88	141	PCIE30_RX0N	I		-	AC27	PCIE30_RX0N	PCIE30_RX0N
S87	143	PCIE30_RX0P	I		-	AC28	PCIE30_RX0P	PCIE30_RX0P
S86	145	GND	G				GND	GND
S85	147	PCIE30_REFCLKN_IN	I		-	AA25	PCIE30_REFCLKN_IN	PCIE30_REFCLKN_IN
S83	151	GND	G				GND	GND

Interface definition

S82	153	NC					NC	NC
S81	155	NC					NC	NC
S80	157	GND	G				GND	GND
S79	159	NC					NC	NC
S78	161	NC					NC	NC
S77	163	NC					NC	NC
S76	165	PWM5/SPI0_CS1_M0/UART0_RTSn/GPIO0_C4_d	I/O	DOWN	3.3V	AD21	PCIE30X1_PRSNT_L_GPIO0_C4	PCIE30X1_PRSNT_L_GPIO0_C4
S75	167	USB3_OTG0_SSRXN/SATA0_RXN	I		-	R27	USB3_OTG0_SSRXN	USB3_OTG0_SSRXN
S74	169	USB3_OTG0_SSRXP/SATA0_RXP	I		-	R28	USB3_OTG0_SSRXP	USB3_OTG0_SSRXP
S73	171	GND	G				GND	GND
S72	173	USB3_OTG0_SSTXN/SATA0_TXN	O		-	T27	USB3_OTG0_SSTXN	USB3_OTG0_SSTXN
S71	175	USB3_OTG0_SSTXP/SATA0_TXP	O		-	T28	USB3_OTG0_SSTXP	USB3_OTG0_SSTXP
S70	177	GND	G				GND	GND
S69	179	USB3_HOST1_DM	I/O		-	P25	USB3_HOST1_DM	USB3_HOST1_DM
S68	181	USB3_HOST1_DP	I/O		-	P24	USB3_HOST1_DP	USB3_HOST1_DP
S67	183	GND	G				GND	GND
S66	185	USB3_HOST1_SSRXN/SATA1_RXN/QSGMII_RXN_M0	I		-	U27	USB3_HOST1_SSRXN	USB3_HOST1_SSRXN
S65	187	USB3_HOST1_SSRXP/SATA1_RXP/QSGMII_RXP_M0	I		-	U28	USB3_HOST1_SSRXP	USB3_HOST1_SSRXP
S64	189	GND	G				GND	GND
S63	191	USB3_HOST1_SSTXN/SATA1_TXN/QSGMII_TXN_M0	O		-	V27	USB3_HOST1_SSTXN	USB3_HOST1_SSTXN

Interface definition

S62	193	USB3_HOST1_SSTXP/SATA1_TXP/QSGMII_TXP_M0	O		-	V28	USB3_HOST1_SSTXP	USB3_HOST1_SSTXP
S61	195	GND	G				GND	GND
S60	197	NC					NC	NC
S59	199	NC					NC	NC
S58	201	LCDC_D2/VOP_BT656_D2_M0/SPI0_CS0_M1/PCIE30X1_CLKREQn_M1/I2S1_LRCK_TX_M2/GPIO2_D2_d	I/O	DOWN	1.8V	AC8	SPI0_CS0_M1/GPIO2_D2	SPI0_CS0_M1/GPIO2_D2
S57	203	LCDC_D0/VOP_BT656_D0_M0/SPI0_MISO_M1/PCIE20_CLKREQn_M1/I2S1_MCLK_M2/GPIO2_D0_d	I/O	DOWN	1.8V	AG6	SPI0_MISO_M1/GPIO2_D0	SPI0_MISO_M1/GPIO2_D0
S56	205	LCDC_D1/VOP_BT656_D1_M0/SPI0_MOSI_M1/PCIE20_WAKEn_M1/I2S1_SCLK_TX_M2/GPIO2_D1_d	I/O	DOWN	1.8V	AD7	SPI0_MOSI_M1/GPIO2_D1	SPI0_MOSI_M1/GPIO2_D1
S55	207	I2S1_SDO0_M0/UART4_CTSn_M0/SCR_DET/AUDIOPWM_ROUT_N/ACODEC_DAC_DATAL/GPIO1_A7_d	I/O	DOWN	3.3V	B20	GPIO1_A7	GPIO1_A7
S54	209	NC					NC	NC
S53	211	NC					NC	NC
S52	213	NC					NC	NC
S51	215	NC					NC	NC
S50	217	NC					NC	NC
S49	219	I2C2_SDA_M1/EBC_GDSP/CAN2_RX_M0/ISP_FLASH_TRIGIN/VOP_BT656_CLK_M1/GPIO4_B4_d	I/O	DOWN	1.8V	V6	I2C2_SDA_M1	I2C2_SDA_M1 Core board Pull up resistance 2.2K
S48	221	I2C2_SCL_M1/EBC_SDSHR/CAN2_TX_M0/I2S1_SDO3_M1/GPIO4_B5_d	I/O	DOWN	1.8V	V5	I2C2_SCL_M1	I2C2_SCL_M1 Core board Pull up resistance 2.2K
S47	223	GND	G				GND	GND
S46	225	NC					NC	NC
S45	227	NC					NC	NC
S44	229	NC					NC	NC

Interface definition

S43	231	LCDC_D14/VOP_BT1120_D5/GMAC1_RXCLK_M0/SDMMC2_DET_M1/GPIO3_A7_d	I/O	DOWN	1.8V	AH2	GPIO3_A7	GPIO3_A7
S42	233	CIF_D1/EBC_SDDO1/SDMMC2_D1_M0/I2S1_SCLK_TX_M1/VOP_BT656_D1_M1/GPIO3_C7_d	I/O	DOWN	1.8V	AA6	I2S1_SCLK_TX_M1	I2S1_SCLK_TX_M1
S41	235	CIF_D4/EBC_SDDO4/SDMMC2_CMD_M0/I2S1_SDI0_M1/VOP_BT656_D4_M1/GPIO3_D2_d	I/O	DOWN	1.8V	Y7	I2S1_SDI0_M1	I2S1_SDI0_M1
S40	237	CIF_D3/EBC_SDDO3/SDMMC2_D3_M0/I2S1_SDO0_M1/VOP_BT656_D3_M1/GPIO3_D1_d	I/O	DOWN	1.8V	AB1	I2S1_SDO0_M1	I2S1_SDO0_M1
S39	239	CIF_D2/EBC_SDDO2/SDMMC2_D2_M0/I2S1_LRCK_TX_M1/VOP_BT656_D2_M1/GPIO3_D0_d	I/O	DOWN	1.8V	AB5	I2S1_LRCK_TX_M1	I2S1_LRCK_TX_M1
S38	241	CIF_D0/EBC_SDDO0/SDMMC2_D0_M0/I2S1_MCLK_M1/VOP_BT656_D0_M1/GPIO3_C6_d	I/O	DOWN	1.8V	AC5	I2S1_MCLK_M1	I2S1_MCLK_M1
S37	243	NC					NC	NC
S36	245	USB_HUB_DM2	I/O		-		USB_HUB_DM2	USB_HUB_DM2
S35	247	USB_HUB_DP2	I/O		-		USB_HUB_DP2	USB_HUB_DP2
S34	249	GND	G				GND	GND
S33	251	NC					NC	NC
S32	253	NC					NC	NC
S31	255	NC					NC	NC
S30	257	NC					NC	NC
S29	259	NC					NC	NC
S28	261	NC					NC	NC
S27	263	NC					NC	NC
S26	265	NC					NC	NC
S25	267	GND	G				GND	GND

Interface definition

S24	269	NC					NC	NC
S23	271	NC					NC	NC
S22	273	NC					NC	NC
S21	275	NC					NC	NC
S20	277	NC					NC	NC
S19	279	NC					NC	NC
S18	281	NC					NC	NC
S17	283	NC					NC	NC
S16	285	GND	G				GND	GND
S15	287	NC					NC	NC
S14	289	NC					NC	NC
S13	291	GND	G				GND	GND
S12	293	NC					NC	NC
S11	295	NC					NC	NC
S10	297	GND	G				GND	GND
S9	299	MIPI_CSI_RX_CLK1N	I		-	AH9	MIPI_CSI_RX_CLK1N	MIPI_CSI_RX_CLK1N
S8	301	MIPI_CSI_RX_CLK1P	I		-	AG9	MIPI_CSI_RX_CLK1P	MIPI_CSI_RX_CLK1P
S7	303	I2C4_SDA_M0/EBC_VCOM/GMAC1_RXER_M1/SPI3_MOSI_M0/I2S2_SDI_M1/GPIO4_B2_d	I/O	DOWN	1.8V	V4	I2C4_SDA_M0	I2C4_SDA_M0 Core board Pull up resistance 2.2K
S6	305	CIF_CLKOUT/EBC_GDCLK/PWM11_IR_M1/GPIO4_C0_d	I/O	DOWN	1.8V	U3	CIF_CLKOUT	CIF_CLKOUT

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S5	307	I2C4_SCL_M0/EBC_GDOE/ETH1_REFCLKO_25M_M1/SPI3_CLK_M0/I2S2_SDO_M1/GPIO4_B3_d	I/O	DOWN	1.8V	V1	I2C4_SCL_M0	I2C4_SCL_M0 Core board Pull up resistance 2.2K
S4	309	NC					NC	NC
S3	311	GND	G				GND	GND
S2	313	LCDC_D21/VOP_BT1120_D12/GMAC1_TXD1_M0/I2C3_SDA_M1/PWM11_IR_M0/GPIO3_B6_d	I/O	DOWN	1.8V	AE3	I2C3_SDA_M1	I2C3_SDA_M1 Core board Pull up resistance 2.2K
S1	314	LCDC_D20/VOP_BT1120_D11/GMAC1_TXD0_M0/I2C3_SCL_M1/PWM10_M0/GPIO3_B5_d	I/O	DOWN	1.8V	AE2	I2C3_SCL_M1	I2C3_SCL_M1 Core board Pull up resistance 2.2K
SC PIN	**PIN**	**CORE-3568J SMARC Core board pin definition**	**Pad type**	**IO Pull**	**IO Power domain**	**RK3568 Pin Number**	**Function for Mainboard (MB-CORE-3568J-SMARC)**	**Defual function description**
P156	2	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	**Input Voltage 5.0V +/-5%** Normal:1.25W (5.0V/250mA) Max: 6W (5.0V/1200mA) Min: (not done deep sleep) power supply suggest: 5.0V/1.5A
P155	4	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P154	6	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P153	8	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P152	10	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P151	12	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P150	14	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P149	16	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P148	18	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P147	20	VCC5V0_SYS	P		5.0V		VCC5V0_SYS	
P146	22	NC					NC	NC
P145	24	NC					NC	NC
P144	26	PWM14_M1/SPI3_CLK_M1/CAN1_RX_M1/PCIE30X2_CLKREQn_M2/I2S3_MCLK_M1/GPIO4_C2_d	I/O	DOWN	1.8V	AF8	CAN1_RX_M1	CAN1_RX_M1

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P143	28	PWM15_IR_M1/SPI3_MOSI_M1/CAN1_TX_M1/PCIE30X2_WAKEn_M2/I2S3_SCLK_M1/GPIO4_C3_d	I/O	DOWN	1.8V	AA11	CAN1_TX_M1	CAN1_TX_M1
P142	30	GND	G					GND
P141	32	LCDC_D16/VOP_BT1120_D7/GMAC1_RXD0_M0/UART4_RX_M1/PWM8_M0/GPIO3_B1_d	I/O	DOWN	1.8V	AG1	UART4_RX_M1	UART4_RX_M1
P140	34	LCDC_D17/VOP_BT1120_D8/GMAC1_RXD1_M0/UART4_TX_M1/PWM9_M0/GPIO3_B2_d	I/O	DOWN	1.8V	AF2	UART4_TX_M1	UART4_TX_M1
P139	36	CIF_CLKIN/EBC_SDCLK/GMAC1_MCLKINOUT_M1/UART1_CTSn_M1/I2S2_SCLK_RX_M1/GPIO4_C1_d	I/O	DOWN	1.8V	U2	UART1_CTSN_M1	UART1_CTSN_M1
P138	38	CIF_HREF/EBC_SDLE/GMAC1_MDC_M1/UART1_RTSn_M1/I2S2_MCLK_M1/GPIO4_B6_d	I/O	DOWN	1.8V	U5	UART1_RTSN_M1	UART1_RTSN_M1
P137	40	CIF_D9/EBC_SDDO9/GMAC1_TXD3_M1/UART1_RX_M1/PDM_SDI0_M1/GPIO3_D7_d	I/O	DOWN	1.8V	Y5	UART1_RX_M1	UART1_RX_M1
P136	42	CIF_D8/EBC_SDDO8/GMAC1_TXD2_M1/UART1_TX_M1/PDM_CLK0_M1/GPIO3_D6_d	I/O	DOWN	1.8V	Y6	UART1_TX_M1	UART1_TX_M1
P135	44	UART2_RX_M0/GPIO0_D0_u	I/O	UP	1.8V	AC20	UART2_RX_DEBUG	UART2_RX_DEBUG
P134	46	UART2_TX_M0/GPIO0_D1_u	I/O	UP	1.8V	AH24	UART2_TX_DEBUG	UART2_TX_DEBUG
P133	48	GND	G					GND
P132	50	SDMMC1_DET/I2C4_SCL_M1/UART8_CTSn_M0/CAN2_TX_M1/GPIO2_B2_u	I/O	UP	1.8V	E25	UART8_CTSN_M0	UART8_CTSN_M0
P131	52	SDMMC1_PWREN/I2C4_SDA_M1/UART8_RTSn_M0/CAN2_RX_M1/GPIO2_B1_d	I/O	DOWN	1.8V	D26	UART8_RTSN_M0	UART8_RTSN_M0
P130	54	CLK32K_OUT1/UART8_RX_M0/SPI1_CS1_M0/GPIO2_C6_d	I/O	DOWN	1.8V	E26	UART8_RX_M0	UART8_RX_M0
P129	56	I2S2_SDI_M0/GMAC0_RXER/UART8_TX_M0/SPI2_CS1_M0/GPIO2_C5_d	I/O	DOWN	1.8V	F26	UART8_TX_M0	UART8_TX_M0
P128	58	PWRON_KEY#	I		3.3V		PWRON_KEY#	PWRON_KEY# INPUT Active L
P127	60	NPOR_U	I		3.3V	AH27	RESET_KEY#	RESET_KEY# INPUT, Active L Core board Pull up resistance 10K
P126	62	CIF_D15/EBC_SDDO15/GMAC1_TXD1_M1/UART9_RX_M2/I2S2_LRCK_RX_M1/GPIO4_A5_d	I/O	DOWN	1.8V	Y1	TACHIN_GPIO4_A5	TACHIN_GPIO4_A5
P125	64	SARADC_VIN2	I	UP	1.8V	D24	SARADC_VIN2	ADC2 INPUT Core board Pull up resistance 10K

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P124	66	SARADC_VIN3	I	UP	1.8V	E23	SARADC_VIN3	ADC3 INPUT Core board Pull up resistance 10K
P123	68	SARADC_VIN4	I	UP	1.8V	G21	SARADC_VIN4	ADC4 INPUT Core board Pull up resistance 10K
P122	70	LCDC_D19/VOP_BT1120_D10/GMAC1_RXER_M0/I2C5_SDA_M0/PDM_SDI1_M2/GPIO3_B4_d	I/O	DOWN	1.8V	AE1	I2C5_SDA_M0	I2C5_SDA_M0 Core board Pull up resistance 2.2K
P121	72	LCDC_D18/VOP_BT1120_D9/GMAC1_RXDV_CRS_M0/I2C5_SCL_M0/PDM_SDI0_M2/GPIO3_B3_d	I/O	DOWN	1.8V	AF1	I2C5_SCL_M0	I2C5_SCL_M0 Core board Pull up resistance 2.2K
P120	74	GND	G					GND
P119	76	CIF_D10/EBC_SDDO10/GMAC1_TXCLK_M1/PDM_CLK1_M1/GPIO4_A0_d	I/O	DOWN	1.8V	AA3	GPIO4_A0	GPIO4_A0
P118	78	CIF_D11/EBC_SDDO11/GMAC1_RXD2_M1/PDM_SDI1_M1/GPIO4_A1_d	I/O	DOWN	1.8V	AA2	GPIO4_A1	GPIO4_A1
P117	80	CIF_D12/EBC_SDDO12/GMAC1_RXD3_M1/UART7_TX_M2/PDM_SDI2_M1/GPIO4_A2_d	I/O	DOWN	1.8V	Y4	GPIO4_A2	GPIO4_A2
P116	82	CIF_D13/EBC_SDDO13/GMAC1_RXCLK_M1/UART7_RX_M2/PDM_SDI3_M1/GPIO4_A3_d	I/O	DOWN	1.8V	Y3	GPIO4_A3	GPIO4_A3
P115	84	CIF_D14/EBC_SDDO14/GMAC1_TXD0_M1/UART9_TX_M2/I2S2_LRCK_TX_M1/GPIO4_A4_d	I/O	DOWN	1.8V	Y2	GPIO4_A4	GPIO4_A4
P114	86	PWM13_M1/SPI3_CS0_M1/SATA0_ACT_LED/UART9_RX_M1/I2S3_SDI_M1/GPIO4_C6_d	I/O	DOWN	1.8V	AE8	GPIO4_C6	GPIO4_C6
P113	88	PWM14_M0/VOP_PWM_M1/GMAC1_MDC_M0/UART7_TX_M1/PDM_CLK1_M2/GPIO3_C4_d	I/O	DOWN	1.8V	AC3	PWM14_M0	PWM14_M0 OUTPUT
P112	90	ISP_PRELIGHT_TRIG/EBC_SDCE3/GMAC1_RXDV_CRS_M1/I2S1_SDO2_M1/GPIO4_B1_d	I/O	DOWN	1.8V	V2	HDA_RST#_GPIO4_B1	HDA_RST#_GPIO4_B1
P111	92	CIF_D6/EBC_SDDO6/SDMMC2_DET_M0/I2S1_SDI2_M1/VOP_BT656_D6_M1/GPIO3_D4_d	I/O	DOWN	1.8V	AA1	CAM1_RST#_GPIO3_D4	CAM1_RST#_GPIO3_D4
P110	94	CIF_D7/EBC_SDDO7/SDMMC2_PWREN_M0/I2S1_SDI3_M1/VOP_BT656_D7_M1/GPIO3_D5_d	I/O	DOWN	1.8V	AA5	CAM0_RST#_GPIO3_D5	CAM0_RST#_GPIO3_D5
P109	96	CIF_D5/EBC_SDDO5/SDMMC2_CLK_M0/I2S1_SDI1_M1/VOP_BT656_D5_M1/GPIO3_D3_d	I/O	DOWN	1.8V	AC1	CAM1_PWR#_GPIO3_D3	CAM1_PWR#_GPIO3_D3
P108	98	CIF_VSYNC/EBC_SDOE/GMAC1_MDIO_M1/I2S2_SCLK_TX_M1/GPIO4_B7_d	I/O	DOWN	1.8V	U4	CAM0_PWR#_GPIO4_B7	CAM0_PWR#_GPIO4_B7
P107	100	HDMITX_CEC_M0/SPI3_CS1_M1/GPIO4_D1_u	I/O	UP	1.8V	AH6	HDMITX_CEC_M0	HDMITX_CEC_M0

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P106	102	HDMITX_SDA/I2C5_SDA_M1/GPIO4_D0_u	I/O	UP	1.8V	AG7	HDMITX_SDA	HDMITX_SDA
P105	104	HDMITX_SCL/I2C5_SCL_M1/GPIO4_C7_u	I/O	UP	1.8V	AG8	HDMITX_SCL	HDMITX_SCL
P104	106	HDMI_TX_HPDIN	O			AB18	HDMI_HPD_IN	HDMI_HPD_INPUT, Active H
P103	108	GND	G				GND	GND
P102	110	HDMI_TX_CLKN	O		-	AG19	HDMI_TXCLKN_PORT	HDMI_TXCLKN_PORT
P101	112	HDMI_TX_CLKP	O		-	AH19	HDMI_TXCLKP_PORT	HDMI_TXCLKP_PORT
P100	114	GND	G				GND	GND
P99	116	HDMI_TX_D0N	O		-	AH20	HDMI_TX0N_PORT	HDMI_TX0N_PORT
P98	118	HDMI_TX_D0P	O		-	AG20	HDMI_TX0P_PORT	HDMI_TX0P_PORT
P97	120	GND	G				GND	GND
P96	122	HDMI_TX_D1N	O		-	AH21	HDMI_TX1N_PORT	HDMI_TX1N_PORT
P95	124	HDMI_TX_D1P	O		-	AG21	HDMI_TX1P_PORT	HDMI_TX1P_PORT
P94	126	GND	G				GND	GND
P93	128	HDMI_TX_D2N	O		-	AH22	HDMI_TX2N_PORT	HDMI_TX2N_PORT
P92	130	HDMI_TX_D2P	O		-	AG22	HDMI_TX2P_PORT	HDMI_TX2P_PORT
P91	132	GND	G				GND	GND
P90	134	PCIE20_TXN/SATA2_TXN/QSGMII_TXN_M1	O		-	W28	PCIE20_TXN	PCIE20_TXN
P89	136	PCIE20_TXP/SATA2_TXP/QSGMII_TXP_M1	O		-	W27	PCIE20_TXP	PCIE20_TXP
P88	138	GND	G				GND	GND
P87	140	PCIE20_RXN/SATA2_RXN/QSGMII_RXN_M1	I		-	Y28	PCIE20_RXN	PCIE20_RXN

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P86	142	PCIE20_RXP/SATA2_RXP/QSGMII_RXP_M1	I		-	Y27	PCIE20_RXP	PCIE20_RXP
P85	144	GND	G				GND	GND
P84	146	PCIE20_REFCLKN	I/O		-	V25	PCIE20_REFCLKN	PCIE20_REFCLKN
P83	148	PCIE20_REFCLKP	I/O		-	V24	PCIE20_REFCLKP	PCIE20_REFCLKP
P82	150	GND	G				GND	GND
P81	152	NC					NC	NC
P80	154	NC					NC	NC
P79	156	GND	G				GND	GND
P78	158	NC					NC	NC
P77	160	NC					NC	NC
P76	162	I2S1_SDO1_M0/I2S1_SDI3_M0/PDM_SDI3_M0/PCIE20_CLKREQn_M2/ACODEC_DAC_DATAR/GPIO1_B0_d	I/O	DOWN	3.3V	D20	GPIO1_B0	GPIO1_B0
P75	164	I2C2_SDA_M0/SPI0_MOSI_M0/PCIE20_PERSTn_M0/PWM2_M1/GPIO0_B6_u	I/O	DOWN	3.3V	AA20	PCIE20X2_PRSNT_L_GPIO0_B6	PCIE20X2_PRSNT_L_GPIO0_B6
P74	166	I2S1_SDO2_M0/I2S1_SDI2_M0/PDM_SDI2_M0/PCIE20_WAKEn_M2/ACODEC_ADC_SYNC/GPIO1_B1_d	I/O	DOWN	3.3V	E20	GPIO1_B1	GPIO1_B1
P73	168	NC					NC	NC
P72	170	NC					NC	NC
P71	172	I2S1_SDO3_M0/I2S1_SDI1_M0/PDM_SDI1_M0/PCIE20_PERSTn_M2/GPIO1_B2_d	I/O	DOWN	3.3V	A21	GPIO1_B2	GPIO1_B2
P70	174	USB2_HOST3_DM	I/O		-		USB_HUB_DM1	USB_HUB_DM1
P69	176	USB2_HOST3_DP	I/O		-		USB_HUB_DP1	USB_HUB_DP1
P68	178	GND	G				GND	GND
P67	180	I2S1_SDI0_M0/PDM_SDI0_M0/GPIO1_B3_D	I/O	DOWN	3.3V		GPIO1_B3	GPIO1_B3

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P66	182	USB2_HOST2_DM	I/O		-		USB2_HOST2_DM	USB2_HOST2_DM
P65	184	USB2_HOST2_DP	I/O		-		USB2_HOST2_DP	USB2_HOST2_DP
P64	186	USB3_OTG0_ID	I	UP	3.3V	L23	USB3_OTG0_ID	USB3_OTG0_ID ,Active L
P63	188	USB3_OTG0_VBUSDET	I		5V	M24	OTG0_VBUSDET	OTG0_VBUSDET INPUT, Active H
P62	190	SDMMC0_PWREN/SATA_MP_SWITCH/PCIE20_CLKREQn_M0/GPIO0_A5_d	I/O	DOWN	3.3V	AF25	USB_OTG_PWREN_H	USB_OTG_PWREN_OUTPUT
P61	192	USB3_OTG0_DM	I/O		-	P28	USB3_OTG0_DM	USB3_OTG0_DM
P60	194	USB3_OTG0_DP	I/O		-	P27	USB3_OTG0_DP	USB3_OTG0_DP
P59	196	GND	G				GND	GND
P58	198	LCDC_VSYNC/VOP_BT1120_D14/SPI1_MISO_M1/UART5_TX_M1/I2S1_SDO3_M2/GPIO3_C2_d	I/O	DOWN	1.8V	AA7	SPI1_MISO_M1	SPI1_MISO_M1
P57	200	LCDC_HSYNC/VOP_BT1120_D13/SPI1_MOSI_M1/PCIE20_PERSTn_M1/I2S1_SDO2_M2/GPIO3_C1_d	I/O	DOWN	1.8V	AD1	SPI1_MOSI_M1	SPI1_MOSI_M1
P56	202	LCDC_DEN/VOP_BT1120_D15/SPI1_CLK_M1/UART5_RX_M1/I2S1_SCLK_RX_M2/GPIO3_C3_d	I/O	DOWN	1.8V	AC4	SPI1_CLK_M1	SPI1_CLK_M1
P55	204	NC					NC	NC
P54	206	LCDC_D8/VOP_BT1120_D0/SPI1_CS0_M1/PCIE30X1_PERSTn_M1/SDMMC2_D0_M1/GPIO3_A1_d	I/O	DOWN	1.8V	AB8	SPI1_CS0_M1	SPI1_CS0_M1
P53	208	GND	G				GND	GND
P52	210	NC					NC	NC
P51	212	NC					NC	NC
P50	214	GND	G				GND	GND
P49	216	NC					NC	NC
P48	218	NC					NC	NC

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P47	220	GND	G				GND	GND
P46	222	LCDC_D6/VOP_BT656_D6_M0/SPI2_MOSI_M1/PCIE30X2_PERSTn_M1/I2S1_SDI3_M2/GPIO2_D6_d	I/O	DOWN	1.8V	AD6	SPI2_MOSI_M1	SPI2_MOSI_M1
P45	224	LCDC_D7/VOP_BT656_D7_M0/SPI2_MISO_M1/UART8_TX_M1/I2S1_SDO0_M2/GPIO2_D7_d	I/O	DOWN	1.8V	AH5	SPI2_MISO_M1	SPI2_MISO_M1
P44	226	LCDC_CLK/VOP_BT656_CLK_M0/SPI2_CLK_M1/UART8_RX_M1/I2S1_SDO1_M2/GPIO3_A0_d	I/O	DOWN	1.8V	AH4	SPI2_CLK_M1	SPI2_CLK_M1
P43	228	LCDC_D5/VOP_BT656_D5_M0/SPI2_CS0_M1/PCIE30X2_WAKEn_M1/I2S1_SDI2_M2/GPIO2_D5_d	I/O	DOWN	1.8V	AF6	SPI2_CS0_M1	SPI2_CS0_M1
P42	230	SDMMC0_D3/ARMJTAG_TMS/UART5_RTSn_M0/GPIO2_A0_u	I/O	UP	1.8V/3.3V Auto	J23	SDMMC0_D3	SDMMC0_D3
P41	232	SDMMC0_D2/ARMJTAG_TCK/UART5_CTSn_M0/GPIO1_D7_u	I/O	UP	1.8V/3.3V Auto	H26	SDMMC0_D2	SDMMC0_D2
P40	234	SDMMC0_D1/UART2_RX_M1/UART6_RX_M1/PWM9_M1/GPIO1_D6_u	I/O	UP	1.8V/3.3V Auto	J24	SDMMC0_D1	SDMMC0_D1
P39	236	SDMMC0_D0/UART2_TX_M1/UART6_TX_M1/PWM8_M1/GPIO1_D5_u	I/O	UP	1.8V/3.3V Auto	J25	SDMMC0_D0	SDMMC0_D0
P38	238	GND	G				GND	GND
P37	240	PWM3_IR/EDP_HPDIN_M1/PCIE30X1_WAKEn_M0/MCU_JTAG_TMS/GPIO0_C2_d	I/O	DOWN	3.3V	AG23	GPIO0_C2	GPIO0_C2
P36	242	SDMMC0_CLK/TEST_CLKOUT/UART5_TX_M0/CAN0_RX_M1/GPIO2_A2_d	I/O	DOWN	1.8V/3.3V Auto	H28	SDMMC0_CLK	SDMMC0_CLK
P35	244	SDMMC0_DET/SATA_CP_DET/PCIE30X1_CLKREQn_M0/GPIO0_A4_u	I/O	UP	3.3V	Y22	SDMMC0_DET_L	SDMMC0_DET_L
P34	246	SDMMC0_CMD/PWM10_M1/UART5_RX_M0/CAN0_TX_M1/GPIO2_A1_u	I/O	UP	1.8V/3.3V Auto	H27	SDMMC0_CMD	SDMMC0_CMD
P33	248	HDMITX_CEC_M1/PWM0_M1/UART0_CTSn/GPIO0_C7_d	I/O	DOWN	3.3V	AH25	GPIO0_C7	GPIO0_C7
P32	250	GND	G				GND	GND
P31	252	LCDC_D4/VOP_BT656_D4_M0/SPI2_CS1_M1/PCIE30X2_CLKREQn_M1/I2S1_SDI1_M2/GPIO2_D4_d	I/O	DOWN	1.8V	AF5	SPI2_CS1_M1	SPI2_CS1_M1
P30	254	PHY0_MDI0+	I/O		-		PHY0_MDI0+	PHY0_MDI0+
P29	256	PHY0_MDI0-	I/O		-		PHY0_MDI0-	PHY0_MDI0-

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P28	258	NC					NC	NC
P27	260	PHY0_MDI1+	I/O		-		PHY0_MDI1+	PHY0_MDI1+
P26	262	PHY0_MDI1-	I/O		-		PHY0_MDI1-	PHY0_MDI1-
P25	264	LED_LINK	O		3.3V		LED_LINK	LED_LINK OUTPUT (Open drain), Connected to LED-
P24	266	PHY0_MDI2+	I/O		-		PHY0_MDI2+	PHY0_MDI2+
P23	268	PHY0_MDI2-	I/O		-		PHY0_MDI2-	PHY0_MDI2-
P22	270	LED_ACT	O		3.3V		LED_ACT	LED_ACT OUTPUT
P21	272	LED_ACT	O		3.3V		LED_ACT	LED_ACT OUTPUT, Active L, Connected to LED-
P20	274	PHY0_MDI3+	I/O		-		PHY0_MDI3+	PHY0_MDI3+
P19	276	PHY0_MDI3-	I/O		-		PHY0_MDI3-	PHY0_MDI3-
P18	278	GND	G				GND	GND
P17	280	MIPI_CSI_RX_D3N	I		-	AE9	MIPI_CSI_RX_D3N	MIPI_CSI_RX_D3N
P16	282	MIPI_CSI_RX_D3P	I		-	AD9	MIPI_CSI_RX_D3P	MIPI_CSI_RX_D3P
P15	284	GND	G				GND	GND
P14	286	MIPI_CSI_RX_D2N	I		-	AD11	MIPI_CSI_RX_D2N	MIPI_CSI_RX_D2N
P13	288	MIPI_CSI_RX_D2P	I		-	AE11	MIPI_CSI_RX_D2P	MIPI_CSI_RX_D2P
P12	290	GND	G				GND	GND
P11	292	MIPI_CSI_RX_D1N	I		-	AH11	MIPI_CSI_RX_D1N	MIPI_CSI_RX_D1N
P10	294	MIPI_CSI_RX_D1P	I		-	AG11	MIPI_CSI_RX_D1P	MIPI_CSI_RX_D1P
P9	296	GND	G				GND	GND

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P8	298	MIPI_CSI_RX_D0N	I		-	AH12	MIPI_CSI_RX_D0N	MIPI_CSI_RX_D0N
P7	300	MIPI_CSI_RX_D0P	I		-	AG12	MIPI_CSI_RX_D0P	MIPI_CSI_RX_D0P
P6	302	NC					NC	NC
P5	304	NC					NC	NC
P4	306	MIPI_CSI_RX_CLK0N	I		-	AH10	MIPI_CSI_RX_CLK0N	MIPI_CSI_RX_CLK0N
P3	308	MIPI_CSI_RX_CLK0P	I		-	AG10	MIPI_CSI_RX_CLK0P	MIPI_CSI_RX_CLK0P
P2	310	GND	G				GND	GND
P1	312	GPIO0_D6_d	I/O	DOWN	1.8V	AC24	GPIO0_D6	GPIO0_D6

T-CHIP INTELLIGENCE TECHNOLOGY

Contact Us
(+86)18688117175

E-mail
global@t-firefly.com

Website
www.t-firefly.com

Address
Room 2101, Hongyu Building, #57 Zhongshan 4Rd, East District, Zhongshan, Guangdong, China.