YeaCreate-RK3562 Cord Board

--Specification Sheet V1.0

Mainboard Model:	PEK3562-CORE_V1.0
Board Name:	YeaCreate-RK3562 Core Board
Security Level:	Public

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Approved by:	

Release Date: 2026/6/5

Directory

1. Introduction

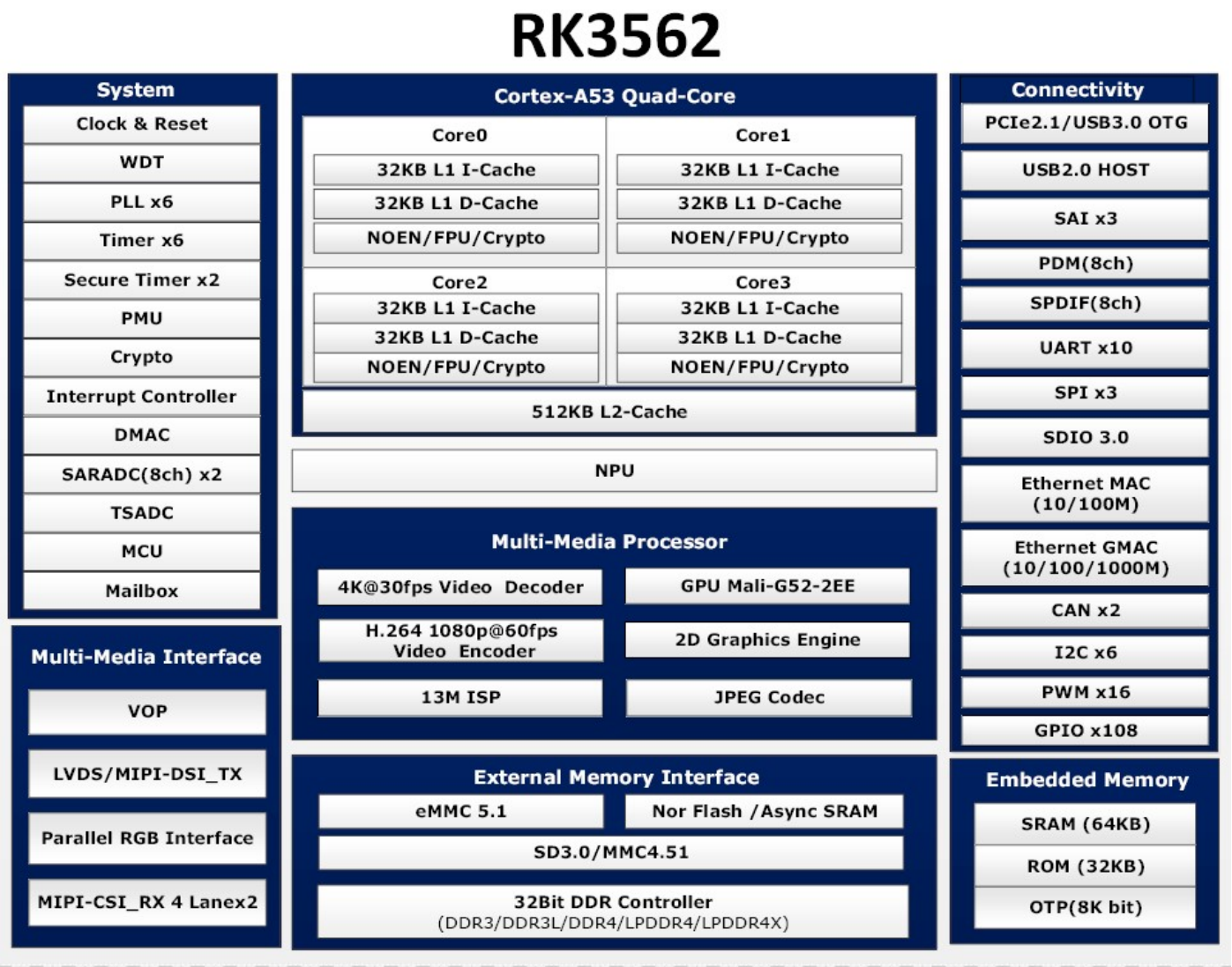
YeaCreate is dedicated to smart home solutions that create a wiser, more convenient life for people. As an innovator in embedded application technology, YeaCreate continuously drives innovation in home connectivity and intelligent interconnection solutions.

2. Features and Applications

1. The Core-RK3562 module is built around four Cortex-A53 cores running at up to 2.0 GHz, featuring an optimized cache hierarchy to balance performance and power efficiency
2. LPDDR4/LPDDR4X/DDR4/DDR3/DDR3L/LPDDR3
3. 4KP30 H.265/VP9, 1080P60 H.264 Video Decoding.
4. 1080P60 H.264 Video Encoding.
5. LVDS/MIPI-DSI/RGB Interface.
6. It supports mainstream operating systems such as Android, Debian, and Ubuntu, as well as Buildroot-based embedded systems, ensuring adaptability for different application scenarios.
7. Designed with a cord board and carries board architecture, the core board serves as the minimum system, while the carrier board handles peripheral interfaces. This allows for rapid development and verification using only a 2 - 4 layer carrier board.
8. The core board supports fast customization with different capacities of DRAM or EMMC.
9. The core board has been adapted with over 10 types of Wi-Fi modules.
10. A reserved shield case interface is provided for reliable operation in harsh environments.
11. The standard configuration includes 4GB RAM and 32GB storage.

2.1. Functional Block Diagram

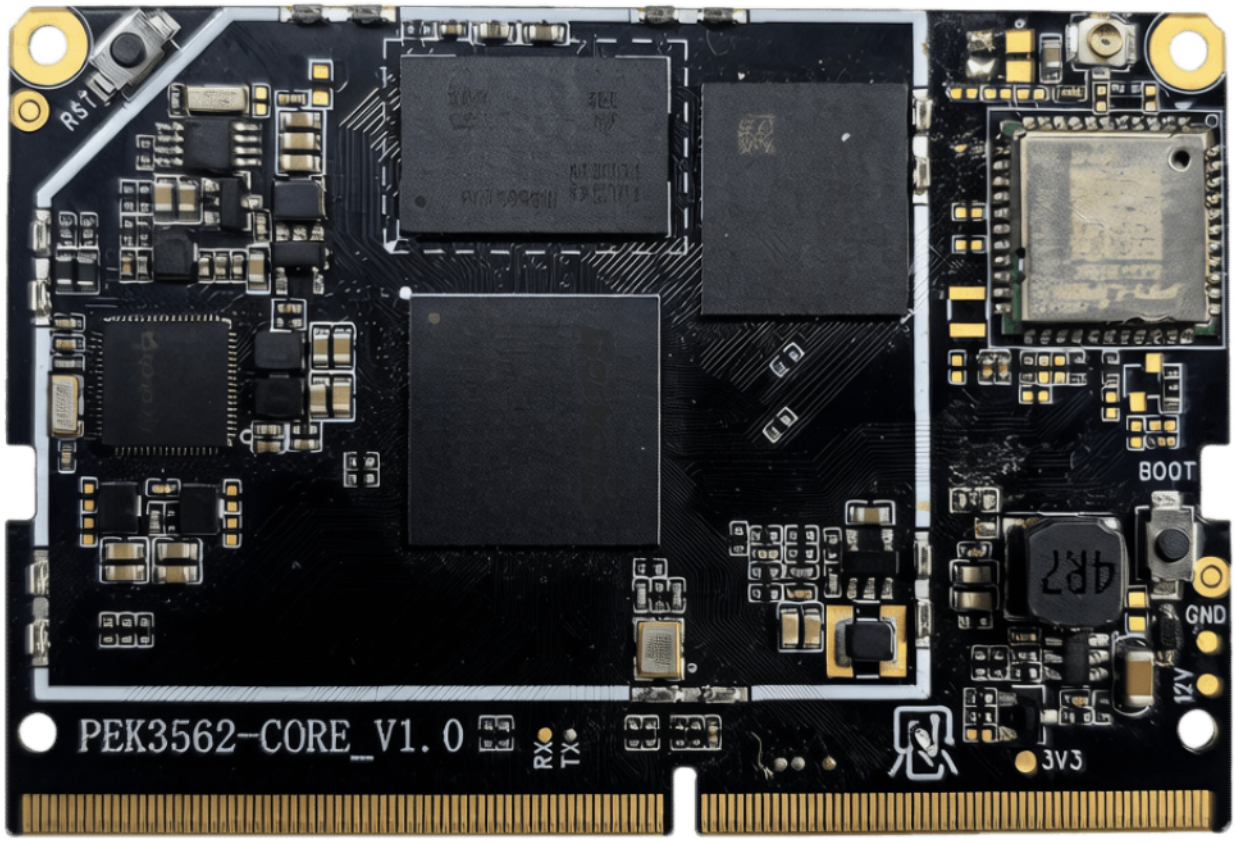
The Core-RK3562 Standard Core Board utilizes the RK3562 as its main CPU, The functional block diagram of the chip is shown below:



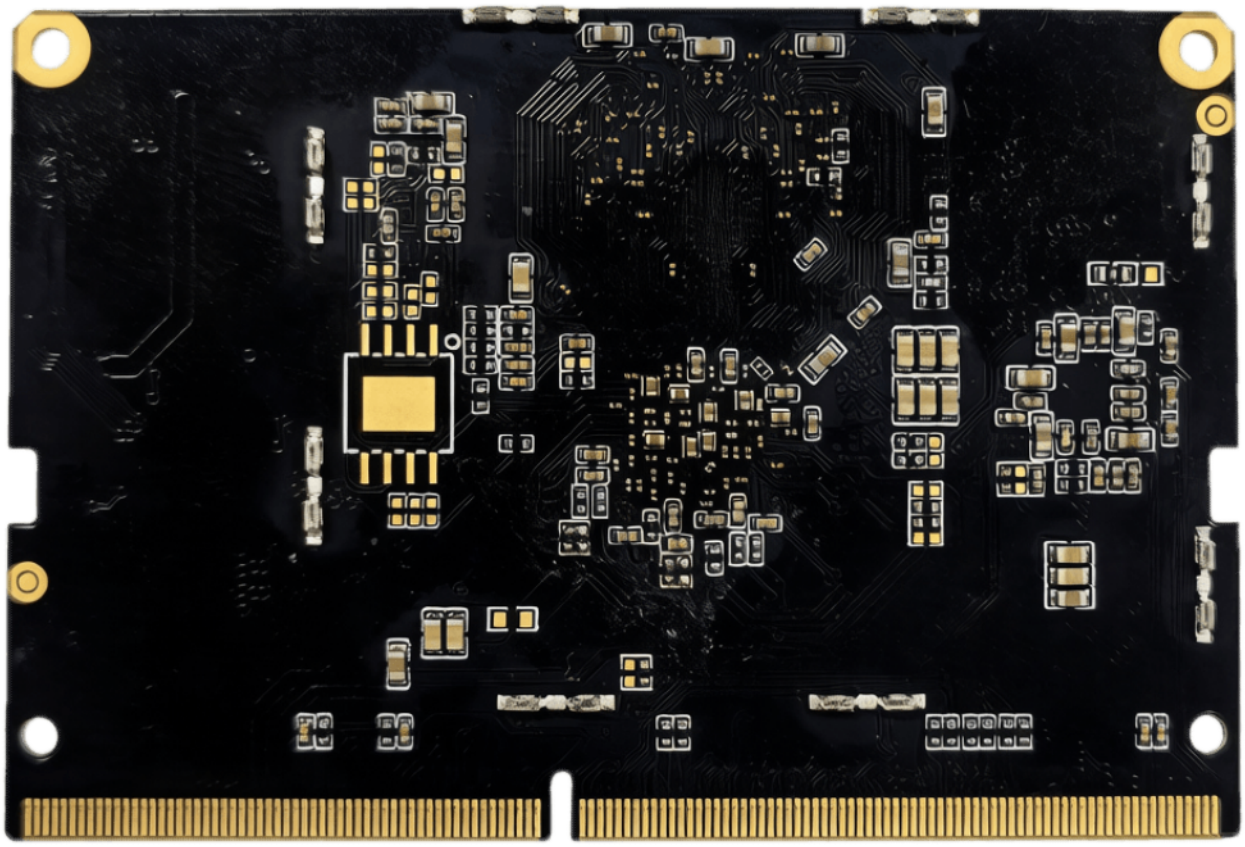
2.2. Applications

3. Mechanical Dimensions

3.1. Top View:



3.2 Bottom View:



3.3. Dimensions:

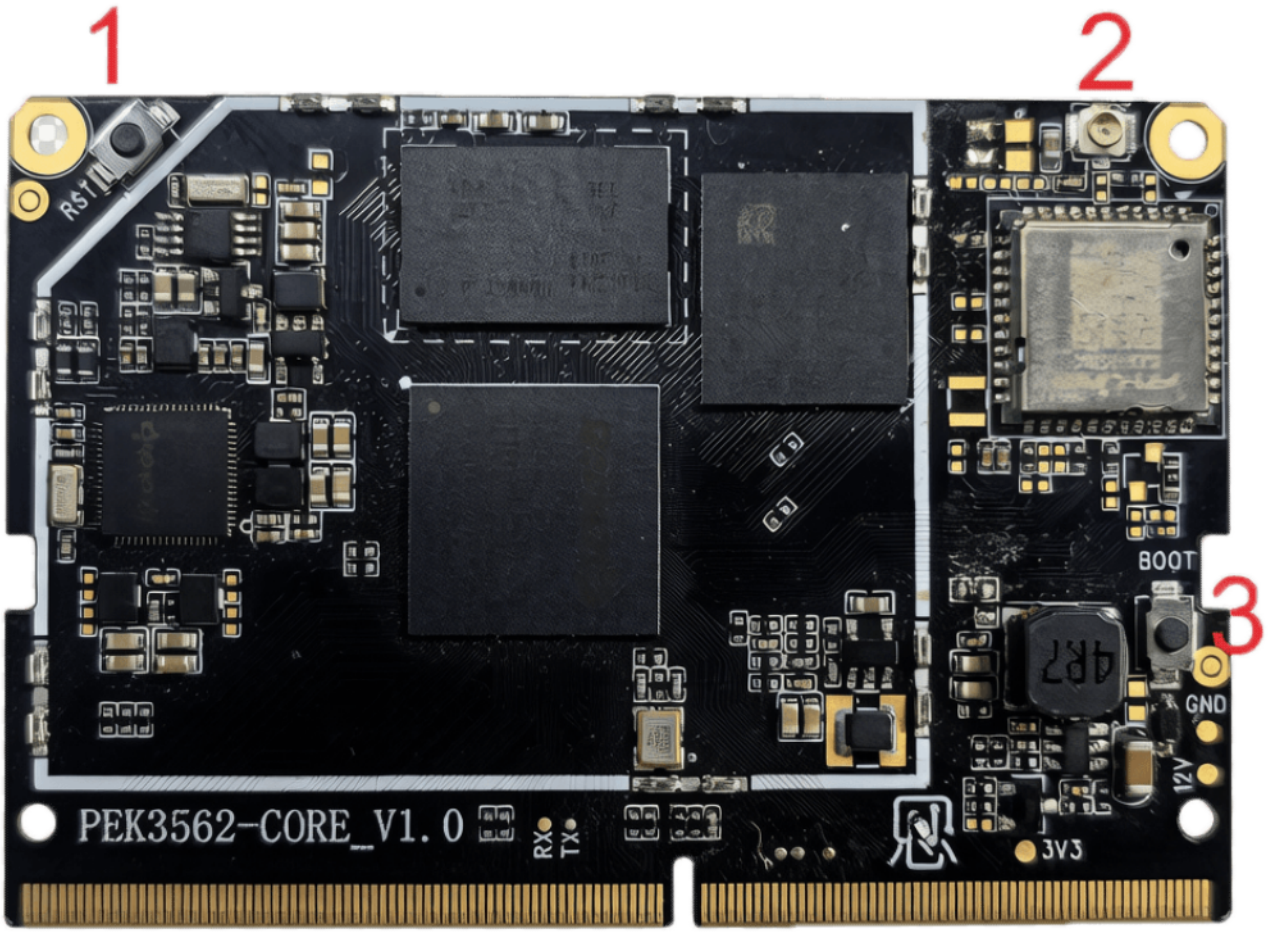
Width	47mm
Length	69.8mm
Tolerance	±0.5mm

4. Electrical Characteristics

4.1.The basic parameters are listed in the table below:

SoC	RockChip RK3562
CPU	Quad-core 64-bit Cortex-A53 processor, up to 2.0 GHz
GPU	ARM G52 2EE Supports OpenGL ES 1.1/2.0/3.2，OpenCL 2.0，Vulkan 1.1 Embedded high-performance 2D graphics acceleration hardware.
NPU	Delivers up to 1 TOPS of computing power.
Memory	LPDDR4/LPDDR4x，default 4GB
Storage	EMMC，default32GB
Ethernet	Integrates a GMAC controller, providing a high-performance Gigabit Ethernet interface (1000 Mbps).
Multimedia	Supports 4K @ 30 fps video decoding (H.265, VP9) and 1080p @ 60 fps video decoding (H.264).. Supports 1080p @ 60 fps video encoding (H.264). Supports 13M ISP.
Display	Single Display Supports LVDS/MIPI-DSI/RGB
Interface	Supports USB3.0 OTG, USB2.0 HOST, PCIE2.1, RGMII + RMII

4.2. Core Board Functions:



No.	Description
1	RK3562 RESET Button
2	IPEX Gen 1 Connector
3	RK3562 BOOT Button

5. Pin Configuration and Functions

For pin multiplexing functions, please refer to the chip datasheet.

No.	Description	No.	Description
1	GND	2	HPL_OUT
3	MIPI_CSI_RX1_D3P	4	HP_SNS
5	MIPI_CSI_RX1_D3N	6	HPR_OUT
7	GND	8	GND
9	MIPI_CSI_RX1_D2P	10	SPKN_OUT
11	MIPI_CSI_RX1_D2N	12	SPKP_OUT
13	GND	14	GND
15	MIPI_CSI_RX1_CLK0P	16	MIC1_IN
17	MIPI_CSI_RX1_CLK0N	18	MIC2_IN
19	GND	20	GND
21	MIPI_CSI_RX1_D1P	22	PMIC_PWRON
23	MIPI_CSI_RX1_D1N	24	RESETn
25	GND	26	PMIC_EXT_EN
27	MIPI_CSI_RX1_D0P	28	PMIC_VDC
29	MIPI_CSI_RX1_D0N	30	GND
31	GND	32	VBAT_P
33	MIPI_CSI_RX1_CLK1P	34	SNSP
35	MIPI_CSI_RX1_CLK1N	36	SNSN

37	GND	38	GND
39	MIPI_CSI_RX0_D3P	40	VCC5V0_SYS
41	MIPI_CSI_RX0_D3N	42	VCC5V0_SYS
43	GND	44	GND
45	MIPI_CSI_RX0_D2P	46	CAM_CLK0_OUT
47	MIPI_CSI_RX0_D2N	48	CAM_CLK1_OUT
49	GND	50	CAM_RST0_L
51	MIPI_CSI_RX0_CLK0P	52	CAM_RST1_L
53	MIPI_CSI_RX0_CLK0N	54	I2C4_SCL_M0
55	GND	56	I2C4_SDA_M0
57	MIPI_CSI_RX0_D1P	58	CAM_PDN0_L
59	MIPI_CSI_RX0_D1N	60	CAM_PDN1_L
61	GND	62	I2C5_SCL_M0
63	MIPI_CSI_RX0_D0P	64	I2C5_SDA_M0
65	MIPI_CSI_RX0_D0N	66	VCCIO5
67	GND	68	GND
69	MIPI_CSI_RX0_CLK1P	70	GPIO3_C4_d
71	MIPI_CSI_RX0_CLK1N	72	GPIO3_C5_d
73	GND	74	GPIO3_C6_d
75	MIPI_DSI_TX_D3N/LVDS_TX_D3N	76	GPIO3_C7_d
77	MIPI_DSI_TX_D3P/LVDS_TX_D3P	78	GPIO3_D0_d
79	GND	80	GPIO3_D1_d
81	MIPI_DSI_TX_D2P/LVDS_TX_D2P	82	GPIO3_D2_d
83	MIPI_DSI_TX_D2N/LVDS_TX_D2N	84	GPIO3_D3_d
85	GND	86	GND
87	MIPI_DSI_TX_CLKN/LVDS_TX_CLKN	88	GPIO3_D4_d
89	MIPI_DSI_TX_CLKP/LVDS_TX_CLKP	90	GPIO3_D5_d
91	GND	92	GPIO3_D6_d
93	MIPI_DSI_TX_D1P/LVDS_TX_D1P	94	GPIO3_D7_d
95	MIPI_DSI_TX_D1N/LVDS_TX_D1N	96	GPIO4_A0_d
97	GND	98	GPIO4_A1_d
99	MIPI_DSI_TX_D0N/LVDS_TX_D0N	100	GPIO4_A2_d
101	MIPI_DSI_TX_D0P/LVDS_TX_D0P	102	GPIO4_A3_d
103	GND	104	GPIO4_A4_d
105	TP_RST_L	106	GPIO4_A5_d
107	I2C2_SDA_TP	108	GPIO4_A6_d
109	I2C2_SCL_TP	110	GPIO4_A7_d
111	TP_INT_L	112	GPIO4_B0_d
113	GPIO0_C0_d	114	GPIO4_B1_d
115	LCD_BL_PWM	116	GPIO4_B2_d
117	HALL_INT_L	118	GPIO4_B3_d
119	UART0_RX_M0_DEBUG	120	GND
121	UART0_TX_M0_DEBUG	122	GPIO4_B4_d
123	PMUIO1	124	GPIO4_B5_d

125	PMUIO1	126	GPIO4_B6_d
127	GND	128	GPIO4_B7_d
129	REFCLK_OUT	130	VCCIO6
131	SDMMC0_DET_L	132	GND
133	PWM3_IR	134	RGMII_RSTn
135	LCD_PWREN_H	136	RGMII_INT/PMEB
137	RTCIC_INT_L	138	PDM_SDI0_M0
139	I2C0_SCL_PMIC	140	PCIE20_CLKREQn_M1/PDM_CLK0_M0
141	I2C0_SDA_PMIC	142	PCIE20_WAKEn_M1/PDM_SDI2_M0
143	USBCC_INT_L	144	PCIE20_PERSTn_M1/PDM_SDI1_M0
145	VCC3V3_PMU	146	VCCIO_ACODEC
147	VCC3V3_PMU	148	VCCIO_ACODEC
149	RTC_BAT	150	VCC_MIC
151	GND	152	VCC_MIC
153	USB30_OTG0_VBUSDET	154	GND
155	USB30_OTG0_ID	156	SDMMC0_D0
157	GND	158	SDMMC0_D1
159	VCC5V0_OTG	160	SDMMC0_D2
161	VCC5V0_OTG	162	SDMMC0_D3
163	USB30_OTG0_DM	164	SDMMC0_CMD
165	USB30_OTG0_DP	166	SDMMC0_CLK
167	GND	168	GND
169	USB20_HOST1_DM	170	VCCIO_SD
171	USB20_HOST1_DP	172	VCCIO_SD
173	GND	174	VCC3V3_SD
175	USB30_OTG0_SSTXP/PCIE20_TXDP	176	VCC3V3_SD
177	USB30_OTG0_SSTXN/PCIE20_TXDN	178	GPIO1_C7_d
179	GND	180	GPIO1_D0_d
181	PCIE20_REFCLKP	182	GND
183	PCIE20_REFCLKN	184	SARADC0_IN1_KEY/RECOVERY
185	GND	186	SARADC0_IN2_HW_ID
187	USB30_OTG0_SSRXP/PCIE20_RXDP	188	SARADC0_IN3
189	USB30_OTG0_SSRXN/PCIE20_RXDN	190	SARADC0_IN4_HP_HOOK
191	GND	192	SARADC0_IN5
193	NC	194	SARADC0_IN6
195	NC	196	VCC_1V8
197	NC	198	VCC_1V8
199	NC	200	VCC_1V8
201	NC	202	GND
203	NC	204	GND
205	NC	206	VCC_3V3
207	NC	208	VCC_3V3
209	NC	210	VCC_3V3
211	NC	212	NC

213	VCC3V3_SYS/VCCBAT_SYS	214	NC
215	VCC3V3_SYS/VCCBAT_SYS	216	NC
217	VCC3V3_SYS/VCCBAT_SYS	218	NC
219	VCC3V3_SYS/VCCBAT_SYS	220	NC
221	VCC3V3_SYS/VCCBAT_SYS	222	NC
223	VCC3V3_SYS/VCCBAT_SYS	224	NC
225	GND	226	GND
227	GND	228	GND
229	GND	230	GND
231	GND	232	GND
233	GND	234	GND
235	GND	236	GND
237	DC5V-12V	238	NC
239	DC5V-12V	240	NC
241	DC5V-12V	242	NC
243	DC5V-12V	244	NC
245	DC5V-12V	246	NC
247	DC5V-12V	248	NC
249	GND	250	GND
251	GND	252	GND
253	GND	254	GND
255	GND	256	GND
257	GND	258	GND
259	GND	260	GND