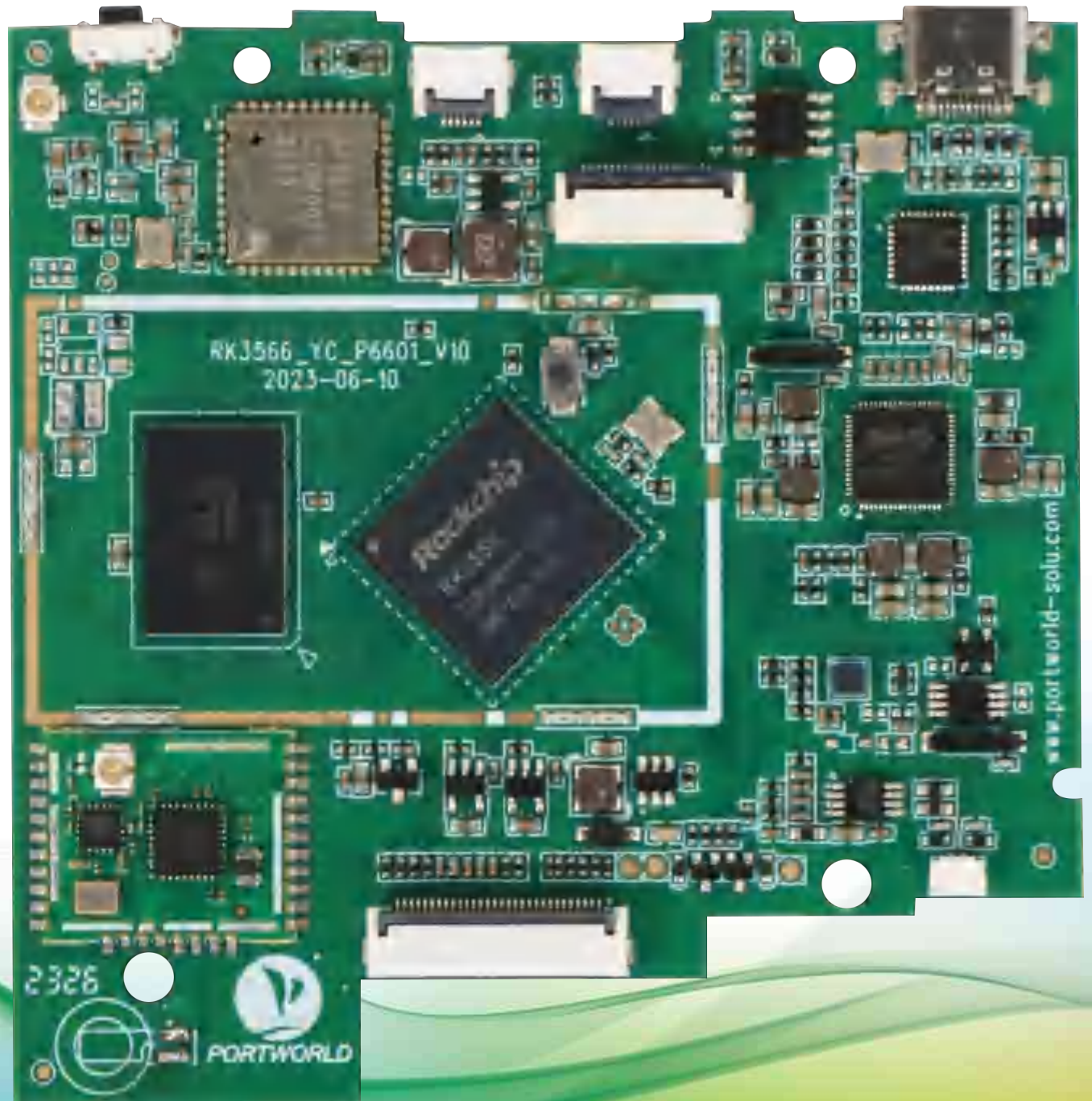




RK3566-P6601 **Smart Home Motherboard**

V1.0 2024-6-4

PORTWORLD



Product features



Quad-core 64-bit Cortex-A55 processor RK3566

Max frequency 1.8GHz 22nm, advanced technology, low power consumption, high performance

Integrated GPU, VPU, NPU

Support OpenGL ES3.2/2.0/1.1, Vulkan1.1
4K 60fps H.265/H.264/VP9 video decoder
1080P 100fps H.265/H.264 video encoder

Multiple Operating Systems

Support Android, Ubuntu, Buildroot, Debian OS and other operating systems.

Rich Peripheral Expansion Interfaces

With MIPI_DSI, I2C, UART, RS485, RS232, SPK, MIC, KNX and other interfaces, it can be directly applied to external device control and expansion.

Supports 8GB of High-Capacity Memory

The system can be equipped with up to 8GB of memory, featuring a 32-bit wide memory bus. This ensures safer and more reliable data processing, catering to applications that require large memory capacities.

Wide Range of Application Scenarios

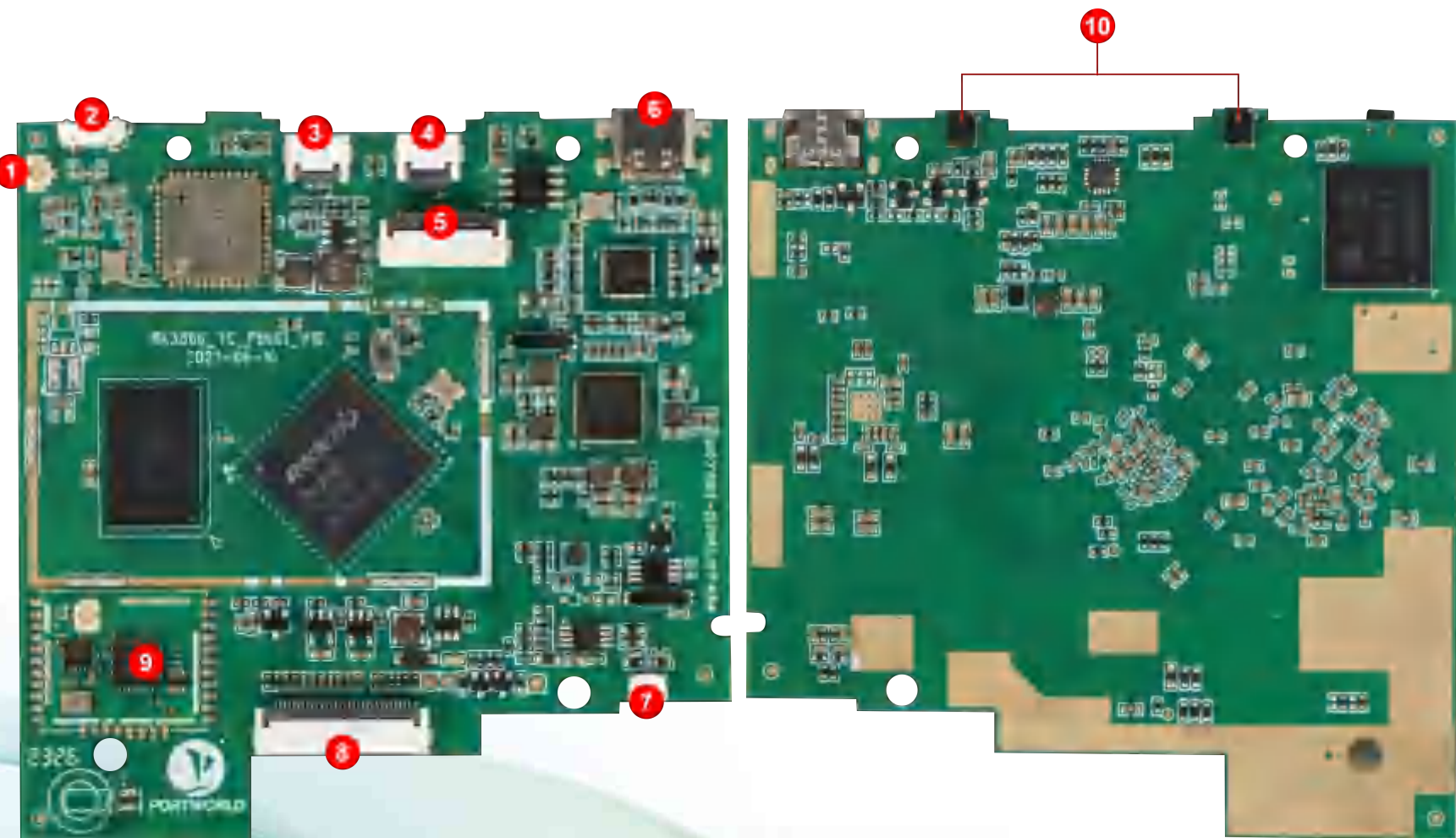
Widely used in smart home, building intercom, automation control, industrial control and other application scenarios.

Open Resources for Customization

We provide a complete software development SDK, along with development documentation, examples, technical resources, and tutorials. This allows users to perform in-depth customization independently.

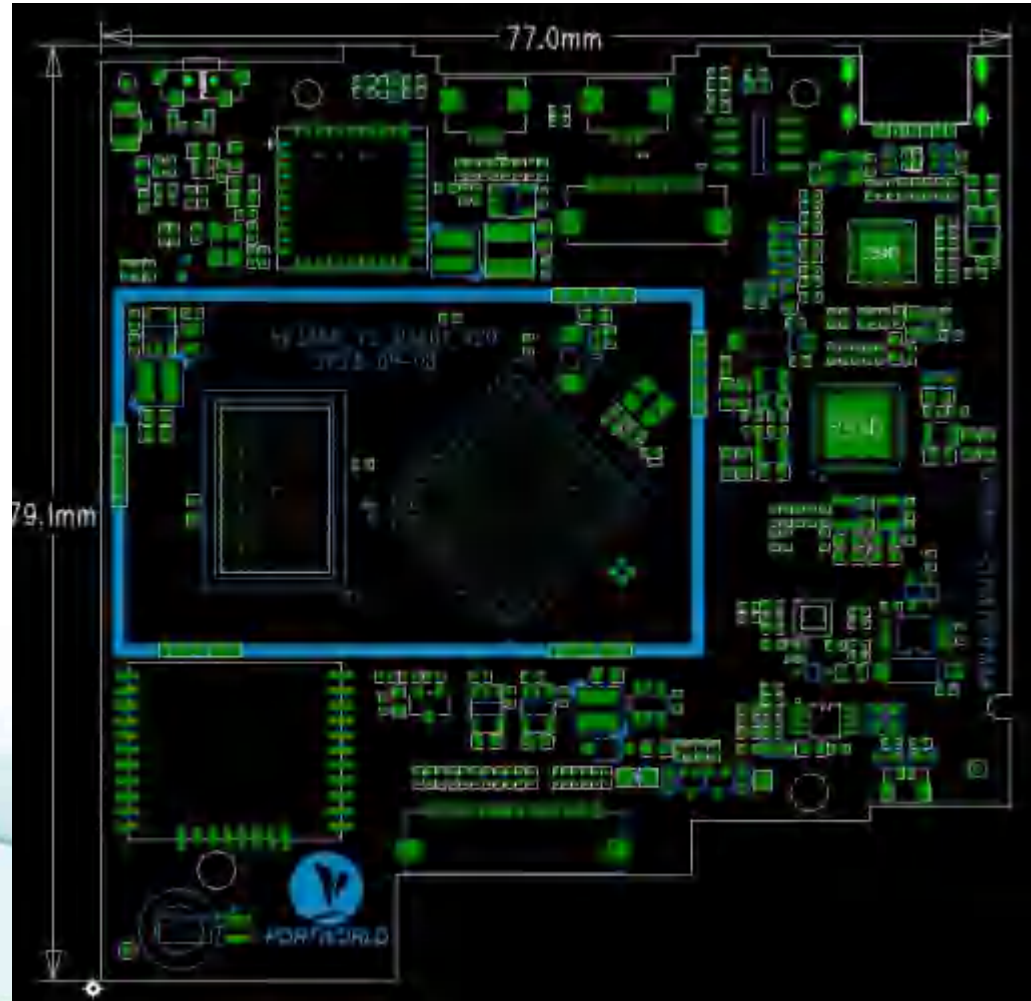
Specifications		
Basic parameters	SOC	RockChip RK3566
	CPU	Quad-core 64bits Cortex-A55 processor, 22nm advanced process, main frequency max up to 1.8GHz
	GPU	ARM G52 2EE Graphics Processor, support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1, and features built-in high-performance 2D acceleration hardware.
	NPU	Integrated RKNN NPU AI Accelerator, 1Tops@INT8 performance, support one-click conversion of models from Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet
	Encoding and Decoding	Video decoder: 4K@60fps H.265/H.264/VP9 Video encoder: 1080P@100fps H.265/H.264
	Memory	2GB optional (4GB/8GB LPDDR4)
	Storage	32GB optional (64GB/128GB eMMC)
	Power	5.0V (Voltage error $\pm 5\%$, expandable POE, DC and AC Power Supply)
	OS	Android、Ubuntu、Buildroot、Debian, etc.
	Dimension	77mm × 79mm
	Power Consumption	Min: 0.03W(5.0V/6mA), Normal: 2.5W(5.0V/500mA), Max: 5.25W (5.0V/1050mA)
	Environment	Operating Temperature: -10° C- 60° C; Storage Temperature: -20° C- 70° C; Operating Humidity: 10%~90%RH(Non-condensing)
Interface parameters	Ethernet	1 × 100Mbps Ethernet (RJ45) (POE power supply)
	WiFi	2.4GHz, 802.11a/b/g/n, Bluetooth5.2 optional (2.4GHz/5GHz dual-band WiFi, 802.11a/b/g/n/ac, Bluetooth5.2)
	Display	1 × MIPI DSI (Single Channel 480*480@60fps)
	Audio	1 × Speaker Output (1.2W 8Ω) Dual Microphone Array (with Echo Cancellation and Noise Reduction)
	USB	1 × USB-C (OTG USB2.0) (Max current: 500mA)
	Touch	Support I2C touch
	Expansion Interface	Light sensor, temperature and humidity sensor, RS485, RS232, KNX, UART, etc.

Interface description

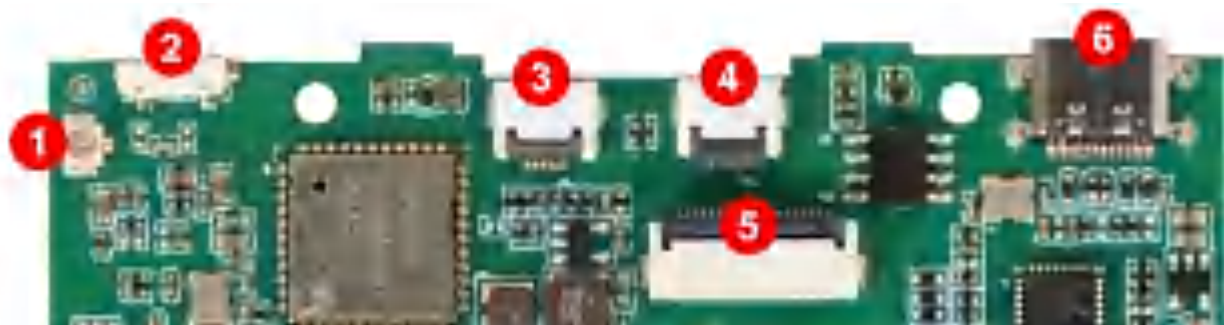


序号	功能描述
1	WIFI/BT Antenna
2	Burn Button
3	Temperature & Humidity Sensor
4	Light Sensor
5	Power Supply - 100Mbps Ethernet - Serial Port (UART5) - 1 GPIO
6	(Type-C_USB2.0) USB_OTG2.0
7	Speaker x1
8	Touch and MIPI_LCD display
9	Zigbee Module (optional, needs confirmation)
10	Dual Microphone Array with Echo Cancellation and Noise Reduction

Dimension



Interface definition



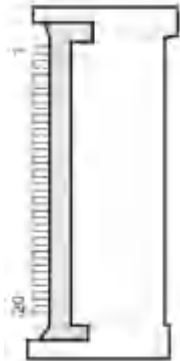
3. Teperature&Humidity Sensor (FPC0.5*6P)

Appearance	Pin number	Definition	Description
	1	3.3V	Power
	2	3.3V	Power
	3	SDA	Data
	4	SCL	Clock
	5	GND	Ground
	6	GND	Ground

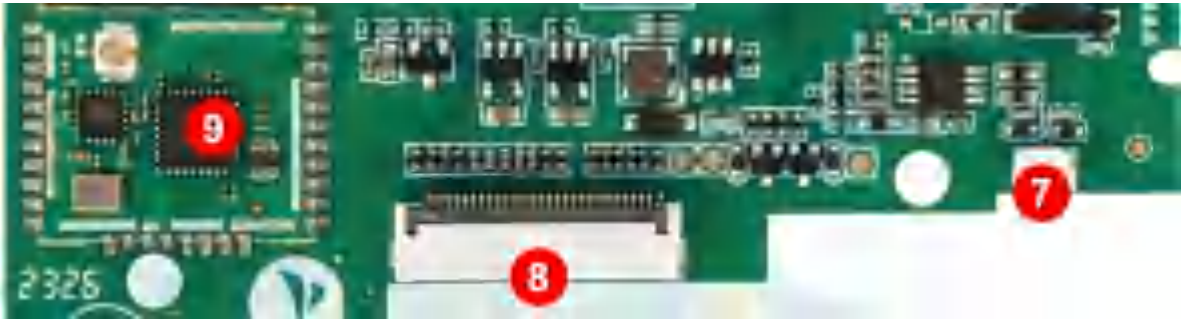
4. Light Sensor(FPC0.5*6P)

Appearance	Pin number	Definition	Description
	1	3.3V	Power
	2	NC	/
	3	INT	Interrupt
	4	SDA	Data
	5	SCL	Clock
	6	GND	Ground

5.Power Supply - 100Mbps Ethernet - Serial Port (UART5) - 1 GPIO (FPC0.5*20P)

Appearance	Pin number	Definition	Description
	1	GND	Ground
	2	MDI0+	Ethernet data
	3	MDI0-	Ethernet data
	4	GND	Ground
	5	MDI1+	Ethernet data
	6	MDI1-	Ethernet data
	7	GND	Ground
	8	GND	Ground
	9	UART5_RX	Receive
	10	UART5_TX	Send
	11	GPIO0_C4	Reserved GPIO
	12	GND	Ground
	13	GND	Ground
	14	GND	Ground
	15	NC	NC
	16	5V_IN	5V power supply to the motherboard
	17	5V_IN	5V power supply to the motherboard
	18	5V_IN	5V power supply to the motherboard
	19	5V_IN	5V power supply to the motherboard
	20	5V_IN	5V power supply to the motherboard

Interface definition



7. Speaker*2 (0.8mm*2P)			
Appearance	Pin number	Definition	Description
	1	SPK1_P	Channel output negative
	2	SPK1_N	Channel output positive
Note: The left and right channels are combined.			

8. MIPI_LCD Display and Touch (FPC0.5*30P)			
Appearance	Pin number	Definition	Description
	1	MIPI_CLKP	MIPI signal
	2	MIPI_CLKN	MIPI signal
	3	GND	Ground
	4	MIPI_D0P	MIPI signal
	5	MIPI_D0N	MIPI signal
	6	GND	Ground
	7	MIPI_D1P	MIPI signal
	8	MIPI_D1N	MIPI signal
	9	GND	Ground
	10	/	/
	11	/	/
	12	GND	Ground
	13	/	/
	14	/	/
	15	GND	Ground
	16	VCC_LED-	Backlight Negative
	17	VCC_LED-	Backlight Negative
	18	VCC_LED+	Backlight Positive
	19	VCC_LED+	Backlight Positive
	20	/	/
	21	/	/
	22	LCD_RST_L	Reset (1.8V Level)
	23	VCC_LCD2V8	LCD 2.8V power supply
	24	VCC_LCD1V8	LCD 1.8V power supply
	25	GND	Ground
	26	VCC_TP	3.3V power supply
	27	TP_RST_L	Reset
	28	TP_INT_L	Input Interrupt
	29	I2C_SDA_TP	Data
	30	I2C_SCL_TP	Clock



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