



RK3566-P6602

Smart Home mainboard



V1.0 2024-6-4

PORTWORLD

Product Features



ROCKCHIP RK3566

Quad-core 64-bit Cortex-A55 processor,
advanced 22nm process, up to 1.8GHz
Low power consumption & high performance

Integrated GPU, VPU, NPU

Supports OpenGL ES 3.2/2.0/1.1, Vulkan 1.1
4K 60fps H.265/H.264/VP9 video decoding
1080P 100fps H.265/H.264 video encoding

Multi-OS Compatibility

Supports Android, Ubuntu, Buildroot, Debian
OS, etc.

Rich Peripheral Expansion Interfaces

Equipped with MIPI_DSI, I2C, UART,
RS485, RS232, SPK, MIC, KNX, and other
interfaces, enable direct control and extension
of external devices.

8GB Memory Support

Up to 8GB memory with a 32-bit data bus
width; enhances data integrity and system
stability, catering to the demands of high-
capacity memory applications

Wide Application Scenarios

Extensively utilized in smart home central
control panels, smart buildings, industrial
auto-control systems, intercoms, RVs, etc.

Open Access and Customization Flexibility

Offers a complete suite of software
development tools including SDK,
development documentation, examples,
technical resources, and development
tutorials, empowering users to independently
perform in-depth customization.

Specifications		
Basic Parameters	SOC	RockChip RK3566
	CPU	Quad-core 64-bit Cortex-A55 processor, advanced 22nm process, up to 1.8GHz
	GPU	ARM G52 2EE graphics processor, supports OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1, with embedded high-performance 2D acceleration hardware
	NPU	Integrated RKNN NPU AI accelerator, 1 Tops@INT8 performance, supports one-click conversion for Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet architecture models
	Decoding/Encoding	Video Decoding: 4K@60fps H.265/H.264/VP9 Video Encoding: 1080P@100fps H.265/H.264
	RAM	2GB (optional 4GB/8GB LPDDR4)
	ROM	32GB (optional 64GB/128GB eMMC)
	Power	5.0V (voltage tolerance $\pm 5\%$, expandable POE, DC power, AC power)
	System	Android, Ubuntu, Buildroot, Debian, etc.
	Dimensions	60mm $\times$ 70mm
	Power Consumption	Min: 0.03W(5.0V/6mA), Normal: 2.5W(5.0V/500mA), Max: 5.25W (5.0V/1050mA)
	Environmental Conditions	Operating Temperature: -10°C to 60°C Storage Temperature: -20°C to 70°C Operating Humidity: 10% to 90% RH (non-condensing)
Interface Parameters	Ethernet	1 $\times$ 100Mbps Ethernet (RJ45) (supports POE power supply)
	WiFi	2.4GHz, 802.11a/b/g/n protocol, Bluetooth 5.2 (optional: 2.4GHz/5GHz dual-band WiFi, 802.11a/b/g/n/ac protocol, Bluetooth 5.2)
	Display	1 $\times$ MIPI DSI (single channel 1920*1080@60fps)
	Audio	2 $\times$ Speaker outputs (1.2W 8 Ω) 1 $\times$ Mic audio input
	USB	USB: 1 $\times$ USB-C (OTG USB2.0) (maximum current: 500mA)
	Touch	Supports I2C touch
	Expansion Interface	Light sensor, temperature and humidity sensor, RS485, RS232, KNX, UART, etc.

Interfaces Description



Number	Description
1	Reset Button
2	Serial Port (UART9)
3	Light Sensor
4	Temperature and Humidity Sensor
5	Power Supply - USB 2.0 - 100Mbps Ethernet - Serial Port (UART7) - 1 GPIO
6	Touch Panel
7	MIPI_LCD Display
8	Burn Button
9	Speakers x2
10	Analog Microphone
11	External Burn Button (Same as 8)
12	WiFi/BT Antenna

Interfaces Definition



2. Serial Port (UART9) (0.8mm*4P)			
Appearance	Number	Definition	Description
	1	3.3V	Power
	2	TX	Transmit
	3	RX	Receive
	4	GND	Ground

3. Light Sensor (FPC0.5*6P)			
Appearance	Number	Definition	Description
	1	3.3V	Power
	2	NC	/
	3	INT	Interrupt
	4	SDA	Data
	5	SCL	Clock
	6	GND	Ground

4. Temperature and Humidity Sensor (FPC0.5*6P)			
Appearance	Number	Definition	Description
	1	3.3V	Power
	2	3.3V	Power
	3	SDA	Data
	4	SCL	Clock
	5	GND	Ground
	6	GND	Ground

5. Power - USB 2.0 - 100Mbps Ethernet - Serial Port (UART7) - 1 GPIO			
Appearance	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	UART7_RX	Receive
	9	UART7_TX	Transmit
	10	GPIO0_C4_EXT	Reserved GPIO
	11	GND	Ground
	12	GND	Ground
	13	GND	Ground
	14	5V_IN	To Mainboard
	15	5V_IN	To Mainboard
	16	5V_IN	To Mainboard
	17	5V_IN	To Mainboard
	18	5V_IN	To Mainboard
	19	VCC5V0_USB_OTG	USB Power
	20	VCC5V0_USB_OTG	USB Power
	21	TYPEC_CC1	CC Pin
	22	TYPEC_CC2	CC Pin
	23	GND	GND
	24	USB_OTG0_DM_EXT	DM
	25	USB_OTG0_DP_EXT	DP
	26	GND	Ground

Interfaces Definition



6. Touch Panel (FPC0.5*10P)

Appearance	Number	Definition	Description
	1	GND	Power
	2	GND	Power
	3	VCC_TP	3.3V Power
	4	SDA	Data
	5	SCL	Clock
	6	GND	Ground
	7	TP_INT	Interrupt
	8	TP_RESET	Reset
	9	GND	Ground
	10	GND	Ground

9. Speakers x2 (0.8mm*4P)

Appearance	Number	Definition	Description
	1	SPK1_N	Left Channel Output Negative
	2	SPK1_P	Left Channel Output Positive
	3	SPK2_N	Right Channel Output Negative
	4	SPK2_P	Right Channel Output Positive

Note: 1 is Left Channel, 2 is Right Channel

7. MIPI_LCD Display (FPC0.5*40P)

Appearance	Number	Definition	Description
	1	NC	/
	2	VDD_LCD	3.3V Power
	3	VDD_LCD	3.3V Power
	4	NC	/
	5	MIPI_RST	Reset (1.8V)
	6	NC	/
	7	GND	Ground
	8	MIPI_TX0N	MIPI Signal
	9	MIPI_TX0P	MIPI Signal
	10	GND	
	11	MIPI_TX1N	MIPI Signal
	12	MIPI_TX1P	MIPI Signal
	13	GND	
	14	MIPI_TX_CLKN	MIPI Signal
	15	MIPI_TX_CLKP	MIPI Signal
	16	GND	
	17	MIPI_TX2N	MIPI Signal
	18	MIPI_TX2P	MIPI Signal
	19	GND	
	20	MIPI_TX3N	MIPI Signal
	21	MIPI_TX3P	MIPI Signal
	22	GND	Ground
	23	NC	/
	24	NC	/
	25	GND	/Ground
	26	NC	/
	27	NC	/
	28	NC	/
	29	VCC_LCD18	1.8V Power
	30	GND	Ground
	31	LED-	Backlight Negative
	32	LED-	Backlight Negative
	33	NC	/
	34	NC	/
	35	AVEE	-5.6V
	36	NC	/
	37	NC	/
	38	AVDD	+5.6V
	39	LED+	Backlight Positive
	40	LED+	Backlight Positive

Interfaces Definition



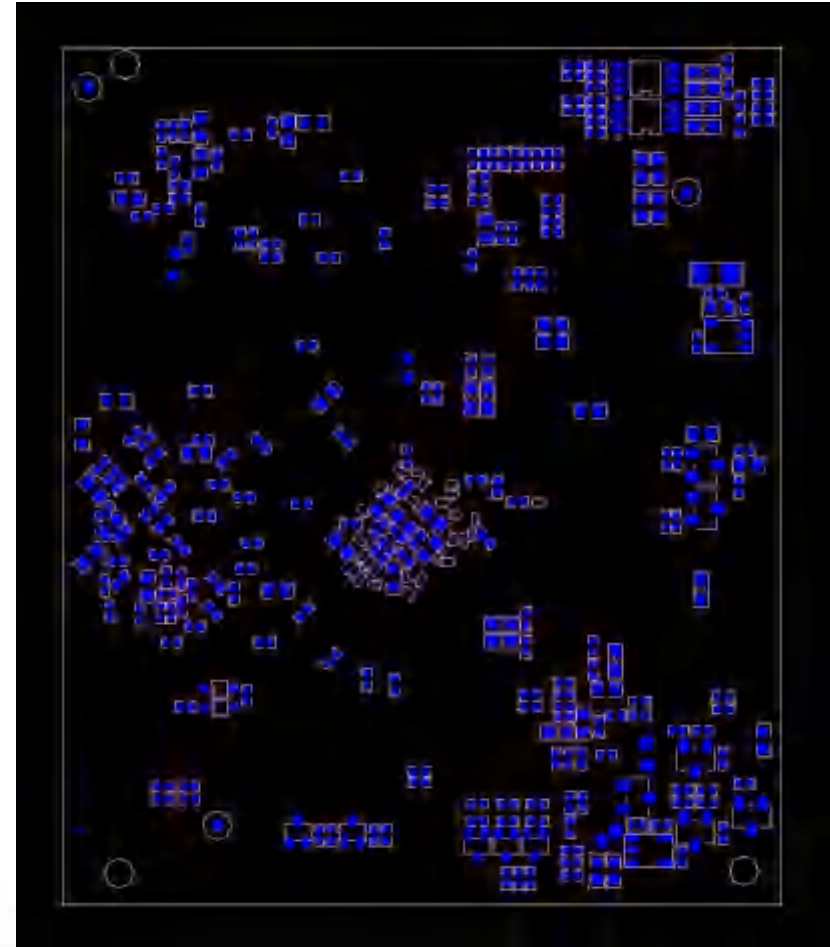
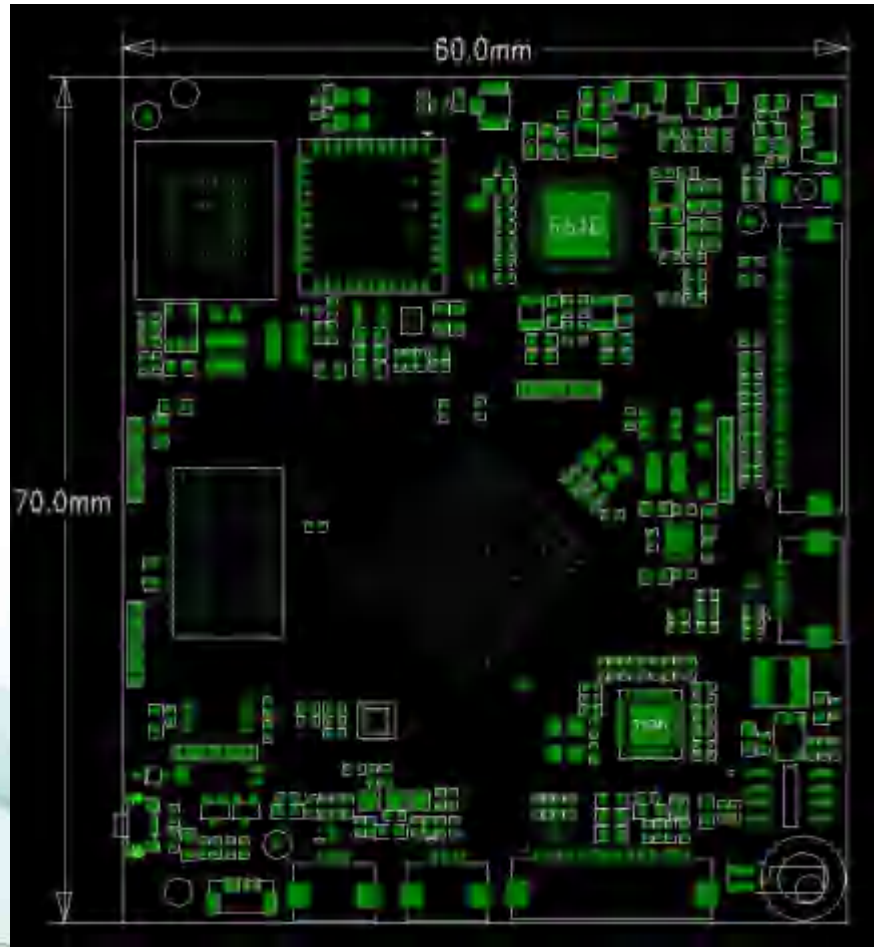
10. Analog Microphone (0.8mm*2P)

Appearance	Number	Definition	Description
	1	MIC-	Microphone Negative
	2	MIC+	Microphone Positive

11. External Burn Button (same as 8) (0.8mm*2P)

Appearance	Number	Definition	Description
	1	RECOVERY	Burn Pin
	2	GND	Ground

Dimensions





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