SpaceChain Hardware Vision 1

Parameters

Contents

1. Overview

The first vison of SpaceChain open source hardware is designed base on Allwinner H3, a chip high-performance processor, integrated Ethernet, infrared reception, video/audio output and other interfaces to support the output of HDMI and AVOUT video.
It introduced a wealth of interfaces including HDMI, Ethernet, usb-host, usb-otg, DVP camera and AVOUT (audio + video). Besides, it is integrated with onboard microphone, infrared receiver, and compatible with raspberry PI GPIO port, as well as independent debugging serial port.

2. Technical Features

- CPU：Allwinner H3, Quad-core Cortex-A7@1.2GHz
- GPU：Mali400MP2@600MHz，Supports OpenGL ES2.0
- DDR3 RAM：512MB/1GB
- Network：10/100M Ethernet
- Audio: 3.5mm headphone holder /Via HDMI
- Microphone: onboard microphone
- Infrared: board infrared receiving module
- USB Host：Type A,USB 2.0 x 3
- MicroSD Slot：x1
- MicroUSB: supports power supply and data transmission with OTG function
- Video output: HDMI 1.4 1080P hd display, CVBS
- DVP Camera interface: 24pin, 0.5mm interval vertical patch FPC mount
- Debugging serial port: 4Pin, 2.54mm row needle
- GPIO: 40pin, 2.54mm spacing, extended GPIO compatible with RasberryPi2, including UART, SPI, I2C, PWM, IO and other pin resources
- Key: power button x1, reset button x1
- PC Size: 64 x 56mm
- Power Supply: DC 5 v / 2 a
- Temperature range: -30c to 70c

3. Structure Description

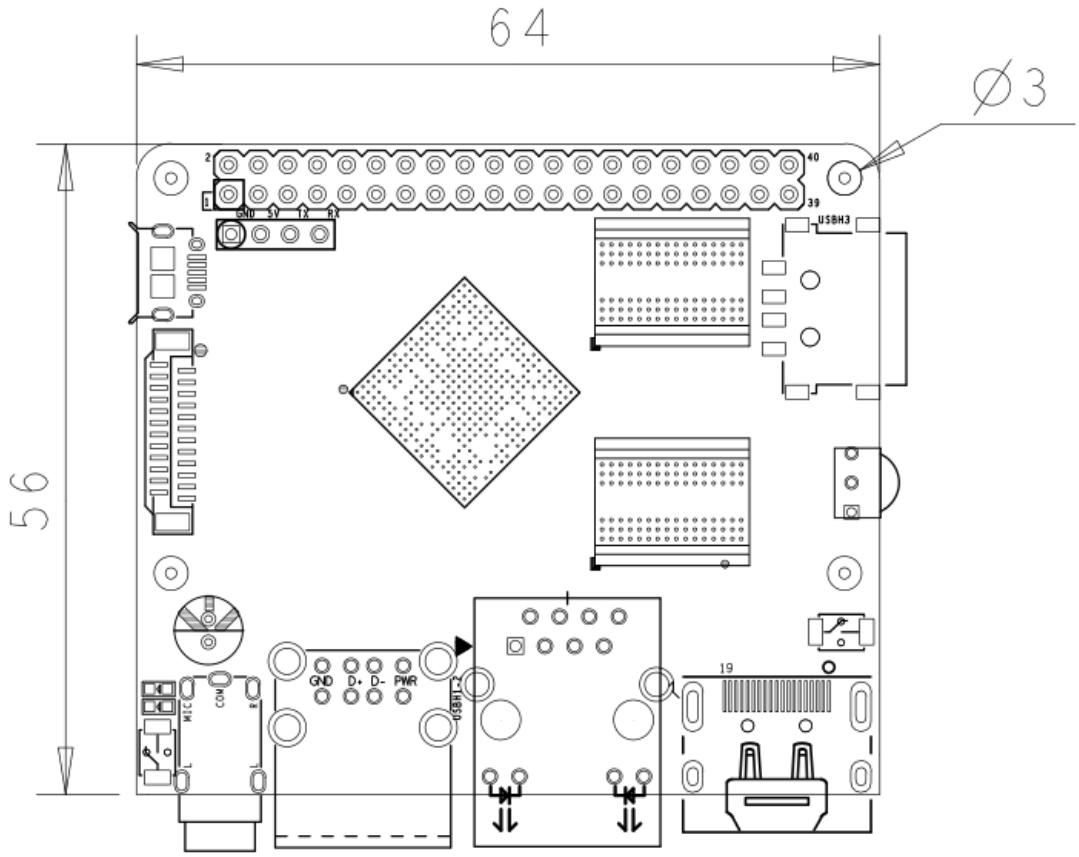

Figure 1 size description of PCB

4. Interface layout

- GPIO Pin Connections

Pin#	Name	Linux gpio	Pin#	Name	Linux gpio
1	SYS_3.3V		2	VDD_5V	
3	I2C0_SDA / GPIOA12		4	VDD_5V	
5	I2C0_SCL / GPIOA11		6	GND	
7	GPIOG11	203	8	UART1_TX / GPIOG6	198
9	GND		10	UART1_RX / GPIOG7	199
11	UART2_TX / GPIOA0	0	12	GPIOA6	6
13	UART2_RTS / GPIOA2	2	14	GND	
15	UART2_CTS / GPIOA3	3	16	UART1_RTS / GPIOG8	200
17	SYS_3.3V		18	UART1_CTS / GPIOG9	201
19	SPI0_MOSI / GPIOC0	64	20	GND	
21	SPI0_MISO / GPIOC1	65	22	UART2_RX / GPIOA1	1
23	SPI0_CLK / GPIOC2	66	24	SPI0_CS / GPIOC3	67

25	GND		26	SPDIF-OUT / GPIOA17	17
27	I2C1_SDA / GPIOA19 / PCM0_CLK / I2S0_BCK	19	28	I2C1_SCL / GPIOA18 / PCM0_SYNC / I2S0_LRCK	18
29	GPIOA20 / PCM0_DOUT / I2S0_SDOUT	20	30	GND	
31	GPIOA21 / PCM0_DIN/ I2S0_SDIN	21	32	GPIOA7	7
33	GPIOA8	8	34	GND	
35	UART3_CTS / SPI1_MISO / GPIOA16	16	36	UART3_TX / SPI1_CS / GPIOA13	13
37	GPIOA9	9	38	UART3_RTS / SPI1_MOSI / GPIOA15	15
39	GND		40	UART3_RX / SPI1_CLK / GPIOA14	14

- **Debug Port（UART0）**

Pin#	Name
1	GND
2	VDD_5V
3	UART_TXD0 / GPIOA4

4	UART_RXD0 / GPIOA5 / PWM0

- **DVP Camera IF Pin definition**

Pin#	Name	Description
1, 2	SYS_3.3V	3.3V Power output to external camera module
7,9,13,15,24	GND	reference ground,0V
3	I2C2_SCL	I2C clock signal
4	I2C2_SDA	I2C data signal
5	GPIOE15	General GPIO, the control signal applied to the external camera module
6	GPIOE14	General GPIO, the control signal applied to the external camera module
8	MCLK	The clock signal provided to the external camera module
10	NC	No connection
11	VSYNC	The external camera module outputs a line signal to the CPU
12	HREF/HSYNC	The field signal output from the external camera module to CPU
14	PCLK	The external camera module outputs the image

		count signal to the CPU
16-23	Data bit7-0	Data signal