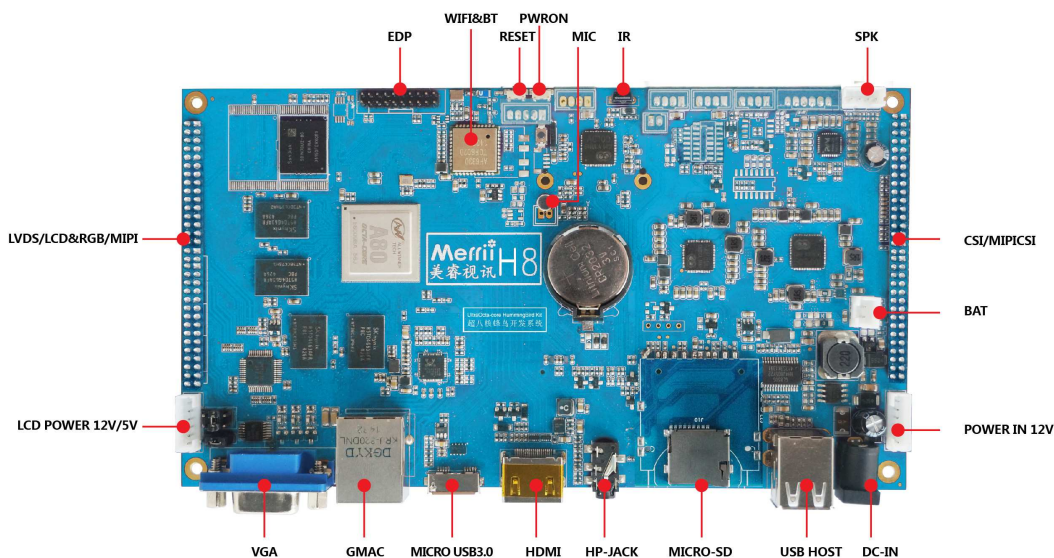


H8 development kit brief introduction

H8 is based on Allwinner A80 SoC is released by Merrii, we can provide users with Android4.4.2 and inux3.4.39 to develop.

OptimusBoard is a mini board based on A80, there are two USB hosts, an 3.0 OTG, a Gigabit Ethernet , a WIFI/BT4.0 as well as line in and HDMI HD video output besidesVGA output. It has all the basic functions of a PC when connect TV and keyboard, such as preadsheets, word processing, play games and HD videos etc.



●Specifications Of A80 SoC

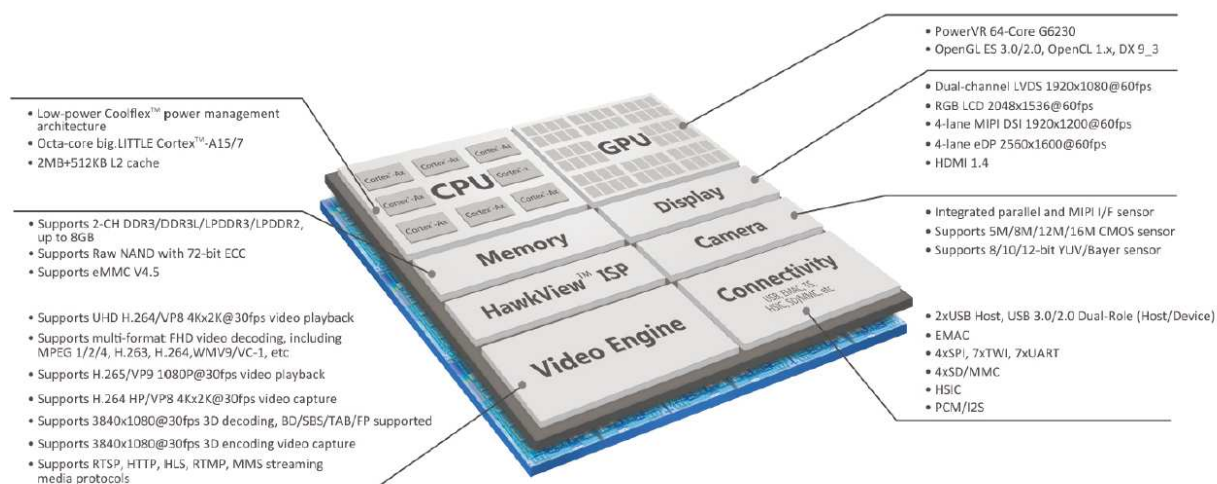
A80 OptimusBoard based on Allwinner UltraOcta A80 processor. A80 processor enriched with interfaces, including HDMI , EDP , LVDS/RGB LCD , USB & GMAC.

A80 processor applies the UltraOcta core ARM big.LITTLE Cortex-A15/A7 structure, both efficient of the Cortex-A15 and energy-saving of Cortex-A7. Equipped with POWERVR G6230 GPU, which is not only improves the system performance, but also satisfy the excellent game compatibility.

In addition, A80 supports 4K*2K@30fps decoding , 4K*2K@30fps coding and HD 1080p@120fps coding.

CPU	● Octa-core big.LITTLE ARM Cortex-A15/A7
GPU	● PowerVR 64core G6230 GPU
	● Comply with OpenGL ES 3.0/2.0/1.1 OpenCL 1.1 Direct 9.3
Video	● HD H.264 4k*2k@30fps video decoding
	● Multi-format FHD video decoding, including Mpeg1/2, Mpeg4 SP/ASP GMC, H.263, H.264 BP/MP/HP, VP8, WMV9/VC-1, Jpeg/Mjpeg, etc.
	● 264 High Profile 4096*2048@30fps、1080p@120fps or 720p@240fps encoding
	● 3840x1080@30fps 3D encoding/decoding, BD/SBS/TAB/FP supported
	● Comply with RTSP, HTTP,HLS,RTMP,MMS streaming media protocols
Display	● Support multi-channel HD display
	● Integrated HDMI 1.4 transmitter with HDCP support
	● CPU/RGB/LVDS LCD interface
	● Support YPbPr/VGA
Camera	● Integrated parallel and MIPI I/F sensor
	● Support 8/10/12-bit YUV/Bayer sensor
	● Support 5M/8M/12M/16M CMOS sensor
Memory	● RAW NAND Flash controller with 72-bit ECC
	● DDR3/DDR3L/LPDDR3/LPDDR2 controller,up to 8G
Audio	● Integrated digital audio interface
OS	● Android 4.4.2 、linux3.4.39

Structure of A80



●Highlights Of A80

The main specifications of A80 UltraOcta -core mobile application processor are as following:

- octa-core big.LITTLE Cortex®-A15/A7 CPU structure
- PowerVR G6230 GPU
- H.265/VP9 1080P@30fps video playback
- H.264/VP8 4K*2k@30fps、1080p@120fps or 720p@240fps video encoding.
- 3840x1080@30fps 3D codec, support BD/SBS/TAB/FP format
- built-in HDMI, an LVDS, etc
- The highest 16 m CMOS sensor
- Through Google CTS test, GMS in the grant application
- support Android 4.4.2 operating system

Strong ability of high-definition video processing

A80 processor supports 4096*2048@30fps video playback , 4096*2048@30fps video coding , 1080p@120fps/720p@240fps video coding, provide users a better experience.

High level of integration

High level of integration has been one of the highlights of SoC products, A80 is no exception, the platform integrates an LVDS, HDMI, EDP to make the system design simpler and BOM cost more competitive, products to market more quickly.

•Software features

Driver support: LCD, Touch Screen, UART, Gigabit Ethernet, HDMI, EDP, etc

Support from emmc Flash, SD card startup guide.

Default Android4.4 system, and provide Linux 3.4 source code

Linux OS Features:

- Linux version: linux 3.4

Android OS Features :

- Android Version: android 4.4.2 and above

Description Of Hardware Interface

Name	Description
CPU	Cortex-A15/A7 PowerVR G6230
PMU	X-Power AXP806+AXP809 smart power management specialist ,accessible to 12Vpower adapter, battery, USB5V power input
DRAM	4*16 Bits DDR3 into 64bit 2048M Bytes DRAM
Flash	SDIN7DU2-8G
TF card	Support up to 32G card memory, support card test
WIFI	Wifi BT two-in-one module
Ethernet	10M/100M/1000M IEEE802.3 , use Realtek RTL8211D/E RJ45
USBHost/USBOTG	1 个 USB OTG 3.0/2.0 , 2USB Host
Headphone	Support stereo headphone output/line in
HDMI output	HDMI v1.4 , support 4k at the most
UART	Provide UART interface, TTL level
Keys	RESET , POWER_ON etc
IR	IR only supports infrared remote control
DC	5V DC IN

●Description of Extended PIN

CSI camera output(J11)

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	VCC-5V		2	D2	
3	VCC-3V		4	D3	
5	CSI-PCLK		6	I2C-SCK	
7	I2C-SDA		8	CSI-VSYNC	
9	CSI-HSYNC		10	CSI-MCLK	
11	D4		12	D5	
13	D6		14	D7	
15	D8		16	D9	
17	D10		18	D11	
19	GND		20	GND	
21	CAM-RESET		22	CAM-STBY	
23	GPIO		24	GND	
25	GND		26	I2C-SCK	
27	UART-RX		28	I2C-SDA	
29	UART-TX		30	SPI-CS0	
31	UART-RTS		32	SPI-CLK	
33	UART-CTS		34	SPI-MOSI	
35	GND		36	SPI-MISO	
37	UART-RX		38	I2C-SCK	
39	UART-TX		40	I2C-SDA	
41	VCC-3V		42	GPIO	

CON18

MIPI camera signal output

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	CSI-CLKP		2	CSI-CLKN	
3	GND		4	GND	
5	CSI-D2P		6	CSI-D2N	
7	CSI-D0P		8	CSI-D0N	
9	CSI-D3P		10	CSI-D3N	
11	CSI-D1P		12	CSI-D1N	
13	CSI-MCLK		14	CSI-SCK	
15	CSI-RESET		16	CSI-SDA	
17	CSI-PWDN		18	CSI-ID	
19	VCC-IO-CAM		20	VDD-CAM	
21	AFVCC-CAM		22	AVCC-CAM	

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J4 LVDS signal output

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	NC		2	LCDVCC	
3	LCDVCC		4	GND	
5	GND		6	GND	
7	RXO0-		8	RXO0+	
9	RXO1-		10	RXO1+	
11	RXO2-		12	RXO2+	
13	GND		14	GND	
15	RXOC-		16	RXOC+	
17	RXO3-		18	RXO3+	
19	RXE0-		20	RXE0+	
21	RXE1-		22	RXE1+	
23	RXE2-		24	RXE2+	
25	GND		26	GND	
27	RXEC-		28	RXEC+	
29	RXE3-		30	RXE3+	

CON11 KEY external interface socket

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	GND		2	LRADC0	
3	UBOOT		4	RESET	
5	POWON				

J6 Backlight inverter control interface

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	BL_IN		2	BL_IN	
3	ON/OFF		4	ADJ	
5	GND		6	GND	

J10 CTP Touch interface

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	GND		2	VCC_3V	

3	I2C_SDA		4	I2C_SCK	
5	TP_INT		6	TP_WAKEUP	

UART0-DEBUG interface

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	GND		2	VCC	
3	UART0-RX		4	UART0-TX	

UART4

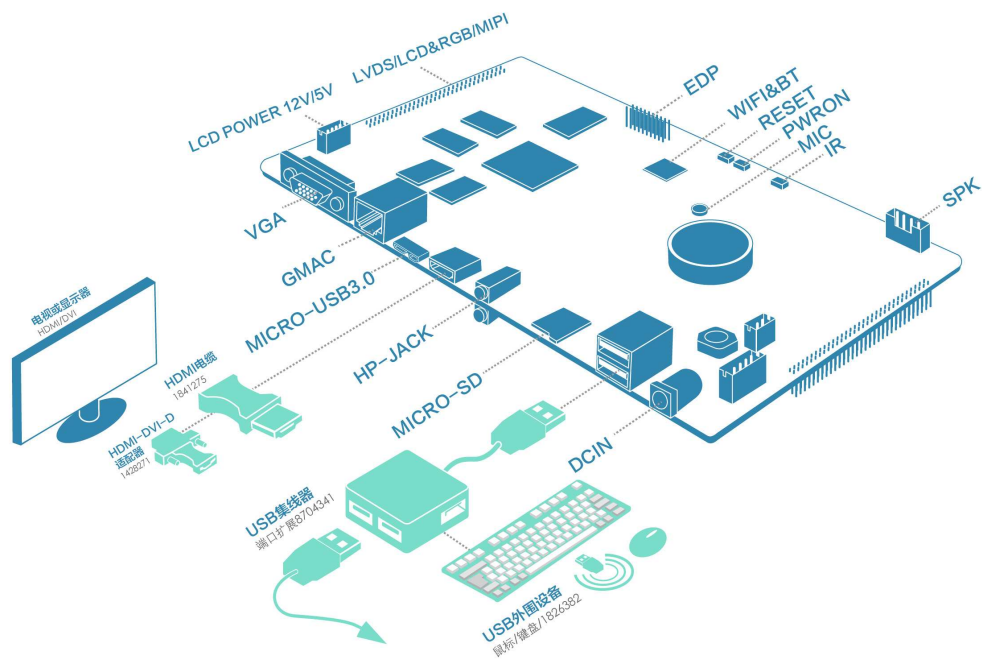
Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	VCC-3.3V		2	UART4-TX	
3	UART4-RX		4	GND	

Prospect and Purpose

Due to the expansion interfaces of optimus development system are much more than some other similar products, and it has got global high attention. Thus making it very powerful, rich social environment and market value. The more people participate, the more rapid development, the greater the potential market, followed by the more purposes. Currently, besides the children's education above-mentioned, it also can be used as basic computer, home theater HD player etc.

●Following uses:

- multimedia player
- PlayStation
- IPTV
- Emulation box
- Auto PC
- Car GPS
- smart robot
- Server
- Electronic Album
- remote surveillance
- Home alarm apparatus / automation system



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