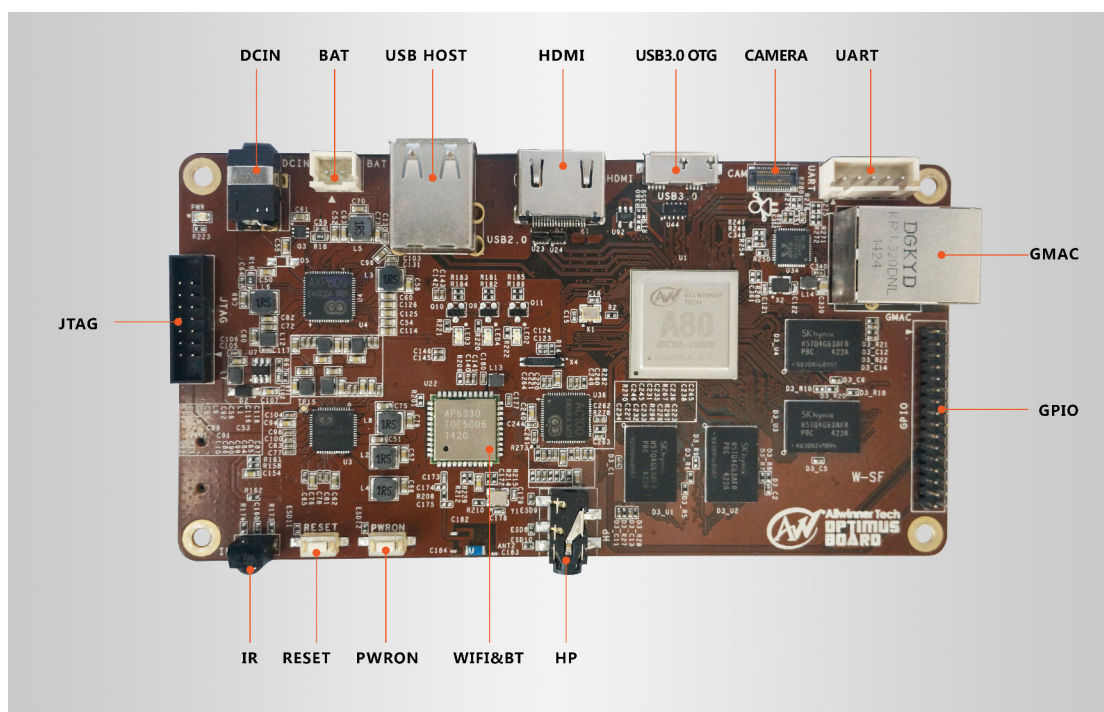


Brief of A80 OptimusBoard

A80 OptimusBoard 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. 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.



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●Specifications Of A80 SoC

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

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	<ul style="list-style-type: none"> ● Octa-core big.LITTLE ARM Cortex-A15/A7
GPU	<ul style="list-style-type: none"> ● PowerVR 64core G6230 GPU
	<ul style="list-style-type: none"> ● Comply with OpenGL ES 3.0/2.0/1.1 OpenCL 1.1 Direct 9.3
Video	<ul style="list-style-type: none"> ● UHD H.264/VP8 4k*2k@30fps video decoding
	<ul style="list-style-type: none"> ● 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.
	<ul style="list-style-type: none"> ● 264 High Profile 4096*2048@30fps、 1080p@120fps or 720p@240fps encoding
	<ul style="list-style-type: none"> ● H.265/VP9 1080P@30fps video playback
	<ul style="list-style-type: none"> ● H.264/VP8 4K*2K@30fps video capture
	<ul style="list-style-type: none"> ● 3840x1080@30fps 3D encoding/decoding, BD/SBS/TAB/FP supported
	<ul style="list-style-type: none"> ● Comply with RTSP, HTTP,HLS,RTMP,MMS streaming media protocols
Display	<ul style="list-style-type: none"> ● Support multi-channel HD display
	<ul style="list-style-type: none"> ● Integrated HDMI 1.4 transmitter
	<ul style="list-style-type: none"> ● RGB/LVDS/EDP LCD interface
	<ul style="list-style-type: none"> ● Dual-channel LVDS 1920*1080@60fps
Camera	<ul style="list-style-type: none"> ● Integrated parallel and MIPI I/F sensor
	<ul style="list-style-type: none"> ● Support 8/10/12-bit YUV/Bayer sensor
	<ul style="list-style-type: none"> ● Support 5M/8M/12M/16M CMOS sensor

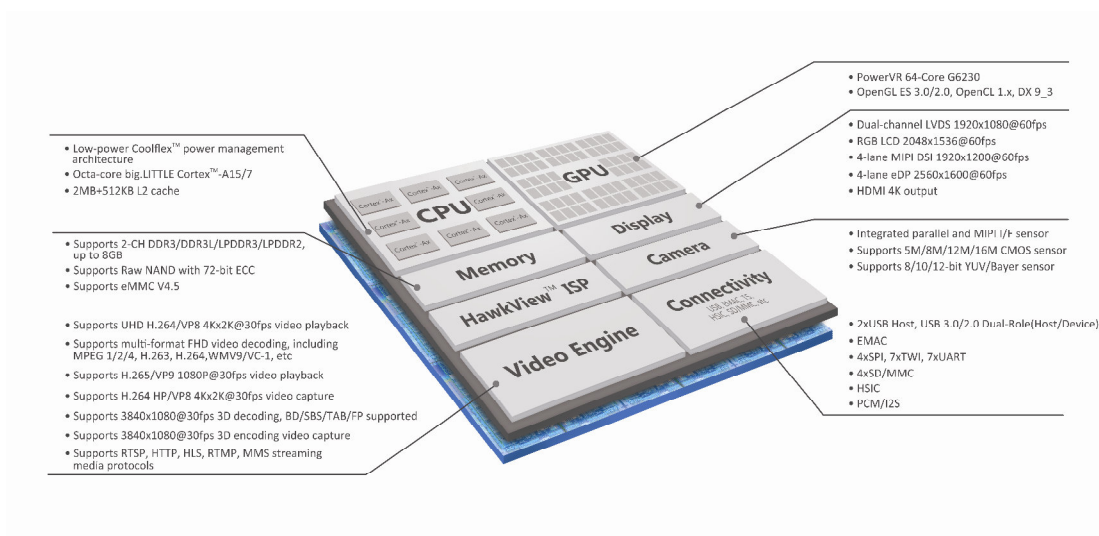
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Memory	● RAW NAND Flash controller with 72-bit ECC
	● Dual-channel DDR3/DDR3L/LPDDR3/LPDDR2 controller, up to 8G
Audio	● Integrated digital audio interface
OS	● Android 4.4.2 、 linux3.4.39

●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

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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 Nand/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 4096M Bytes DRAM
NAND Flash	Hynix H27UCG8T2BTRBC 8G Bytes MLC 64bit ECC NAND Flash and Emmc Flash. It can act as system's boot device
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 ↑ 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

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Keys	RESET , POWER_ON etc
IR	IR only supports infrared remote control
DC	5V DC IN

●Description of Extended PIN

Support these wiring pin functions: UART0、CAM, GPIO, JTAG

CAM

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	GND		2	AFVCC-CAM	
3	MIPI-CSI2-CLKP		4	AFVCC-CAM	
5	MIPI-CSI2-CLKN		6	DVDD-CAM	
7	GND		8	VCC-IO-CAM	
9	MIPI-CSI2-D2P		10	NC	
11	MIPI-CSI2-D2N		12	MIPI-CSI2-MCLK	
13	GND		14	NC	
15	MIPI-CSI2-D0P		16	NC	
17	MIPI-CSI2-D0N		18	MIPI-CSI-SCK	
19	GND		20	MIPI-CSI-SDA	
21	MIPI-CSI2-D3P		22	MIPI-CSI-RESET	
23	MIPI-CSI2-D3N		24	MIPI-CSI-PWDN	
25	GND		26	NC	
27	MIPI-CSI2-D1P		28	GND	
29	MIPI-CSI2-D1N		30	NC	
31	GND		32	GND	
33	GND		34	GND	

GPIO

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	GPIO-ADC0		2	GPIO-PL0-CPUS-TX	
3	GPIO-ADC1		4	GPIO-PL0-CPUS-RX	
5	GND		6	GPIO-3V	
7	GPIO-HSIC-STRB		8	GND	
9	GND		10	GPIO-PH6-PWM0	
11	GPIO-HSIC-DATA		12	GND	
13	GND		14	GPIO-PH14-SPI3-CLK	
15	GPIO-PL7-1WIRE		16	GPIO-PH15-SPI3-MOSI	
17	GPIO-PM0		18	GPIO-PH16-SPI3-MISO	
19	GPIO-PM1		20	GPIO-PH17-SPI3-CS0	

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21	GPIO-PM2		22	GPIO-PG10-TWI3-SCK	
23	GPIO-PM3		24	GPIO-PG11-TWI3-SDA	
25	GPIO-PM4		26	GPIO-PG12-UART4-TX	
27	GPIO-PM8		28	GPIO-PG13-UART4-RX	
29	GPIO-PM9		30	GPIO-PG14-UART4-RTS	
31	GPIO-PH2		32	GPIO-PG14-UART4-CTS	

JTAG

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	VCC-PH		2	GND	
3	NC		4	GND	
5	CPUB-TDI		6	GND	
7	CPUB-TMS		8	GND	
9	CPUB-TCK		10	GND	
11	CPUB-TDO		12	NC	
13	VCC-PH		14	GND	

UART

Pin	Pin Name	IO type	Pin	Pin Name	IO type
1	GND		2	GND	
3	VCC-PH		4	GPIO-PH13-UART0-RX	
5	GPIO-PH12-UART0-TX				

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

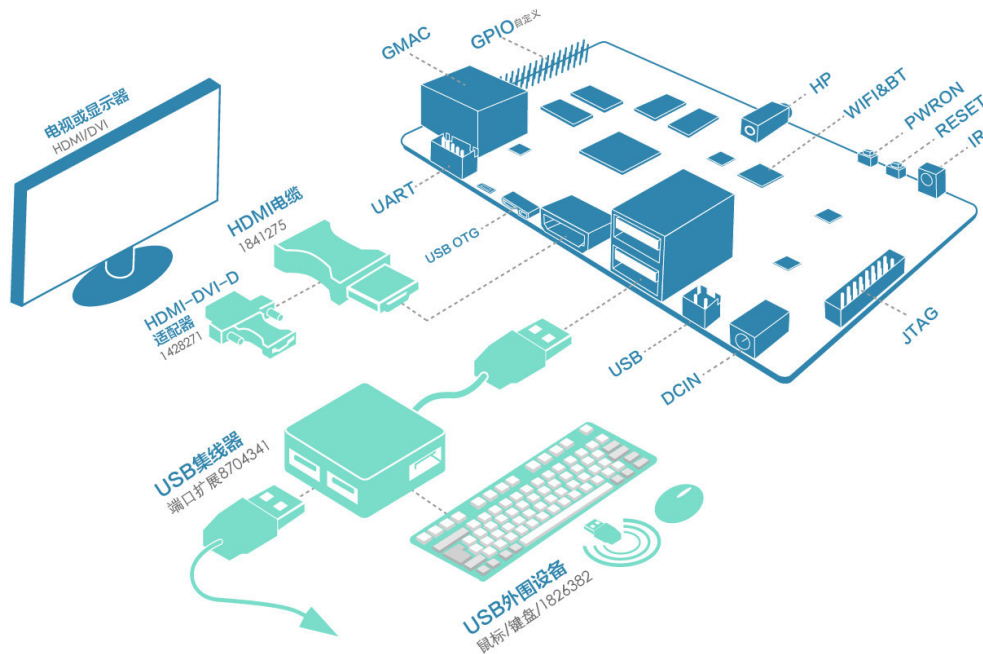
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- Server
- Electronic Album
- remote surveillance
- Home alarm apparatus / automation system

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Related Link : <http://www.allwinnertech.com/en/clq/processora/A80.html>

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