ALLWINNER®

Octa-Core Processor
of Smart Rearview Mirror

ALLWINNER®
V66

Overview

The Allwinner V66 is an octa-core ARM Cortex™-A7 processor targeted at the smart rearview mirror market. Supports two independent video channels, which assures the front-facing camera up to 2304*1296P@30fps and the rear camera up to 720P@30fps work at the same time.
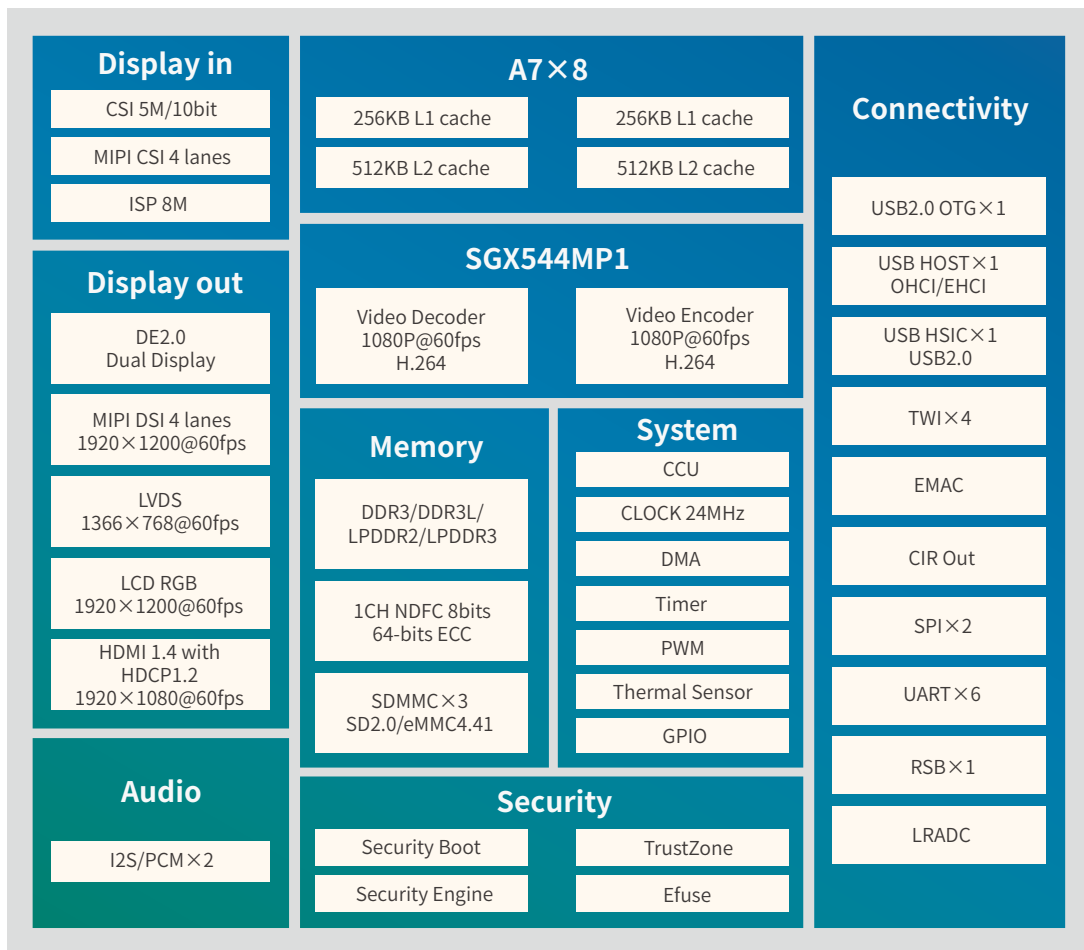
Highlights

Based on an octa-core ARM Cortex™ -A7 CPU architecture and SGX 544 MP1 GPU, which providing the powerful processing and display performance.

Supports the multiple DRAM types as well as the dynamic frequency adjustment, a variety of automotive application scenario bandwidth and power consumption requirements.

Immerse yourself in a high-definition multi-format playback, supports H.264 1080p@60fps or 720p@120fps video encoding and H.265/VP9 decoder 1080p@30fps video playback with software.

Supports the multiple output interface, according to satisfy the display demand of RGB/LVDS/MIPI DSI etc.

Supports four-lane MIPI/ parallel CSI image sensor, integrated 8M HawkView ISP.

Built in professional ADAS 2.0 algorithm and split screen display function.

Supports Android 4.4 System and above.

Features

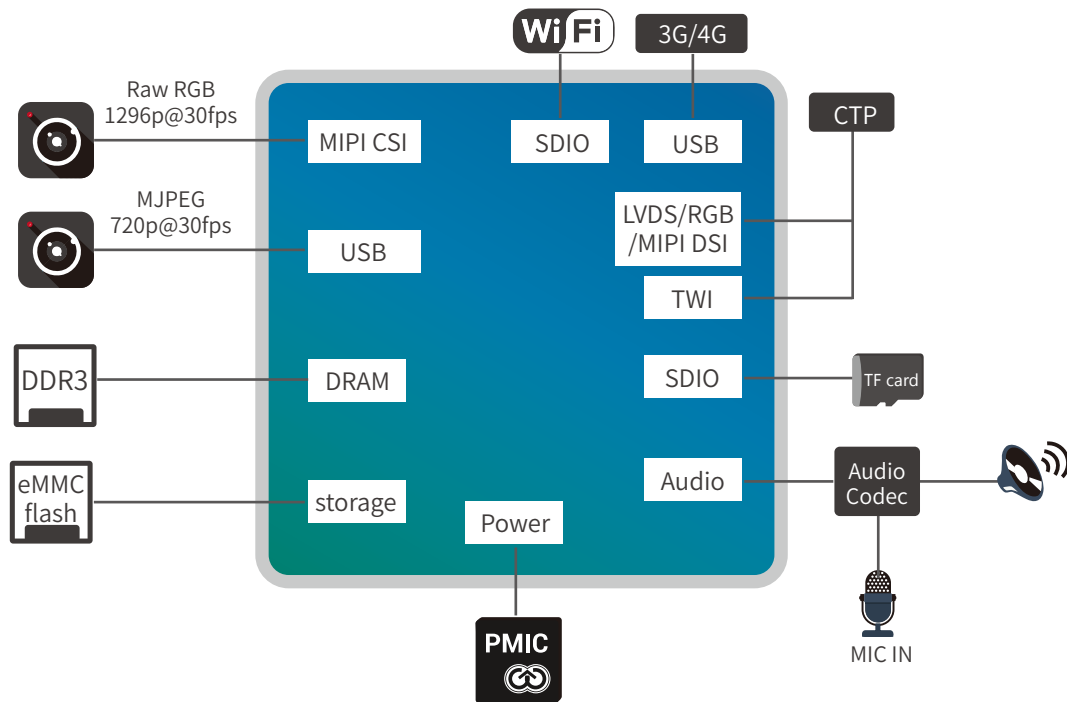|	
CPU	• Octa-Core Cortex™-A7 CPU up to 2.0GHz • Low-power CoolFlex™ power management architecture
GPU	• PowerVR SGX544 GPU up to 700MHz • Supports OpenGL ES 2.0/1.1, OpenCL 1.1, DX 9.3
Memory	• Supports 32-bit DDR3/DDR3L/LPDDR3/LPDDR2 • Supports eMMC
Video	• Supports multi-format 1080p@60fps video playback, including H.264 BP/MP/HP, VP8, MPEG1/2, MPEG4 SP/ASP GMC,H.263 including Sorenson Spark, WMV9/VC-1, JPEG/MJPEG, etc • Supports H.264 1080p@60fps or 720p@120fps video encoding

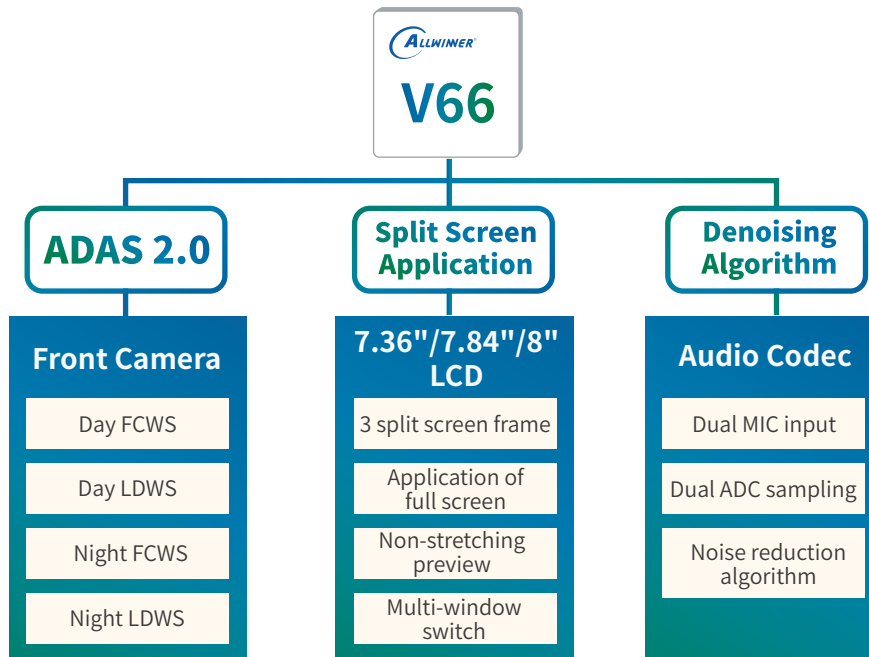|	
Display	• Support two independent display channels • Support RGB(24bits) up to 1920x1200@60Hz resolution • Support RGB666/656 ditcher function • Support LVDS up to 1366x768@60Hz resolution • Support 4-lane MIPI DSI(V1.0) up to 1920x1200@60Hz resolution • Support HDMI V1.4 output with HDCP1.2 up to 1920x1080@60Hz resolution
Camera	• Integrated 5MP parallel CMOS sensor • Integrated 8MP MIPI CSI controller • Integrated 8M ISP • Support 720P 30fps USB camera (UVC)
Audio	• Supports 24bit/192KHz audio playback • Supports two I2S/PCM interfaces up to 384KHz sample rate, and 16 channel TDM with 32bit sample resolution • Supports DSD interface with 2 channels, 64/128/256-bit sample mode • Supports DMIC interface with 8 channels, maximum 48KHz sample rate • Supports SPDIF OUT and IN interface
Wi-Fi	• Supports 802.11 b/g/n protocol • Full security support: WPS, WPA, WPA2, WEP, TKIP
PMIC	• Customized AXP818 PMIC
Package	• FCBGA 345 • 14mm x 14mm size

Block Diagram

Application Diagram

1. Two independent video channels

Allwinner V66

Camera inputs:
- Raw RGB 1296p@30fps → MIPI CSI
- MJPEG 720p@30fps → USB

- WiFi → SDIO
- 3G/4G → USB
- CTP → LVDS/RGB/MIPI DSI, TWI
- DDR3 → DRAM
- eMMC flash → storage
- TF card → SDIO
- Audio → Audio Codec → Speaker, MIC IN
- Power → PMIC

2. ADAS 2.0 algorithm & Split screen application & Dual MIC noise reduction

V66

ADAS 2.0	Split Screen Application	Denoising Algorithm
Front Camera	**7.36"/7.84"/8" LCD**	**Audio Codec**
Day FCWS	3 split screen frame	Dual MIC input
Day LDWS	Application of full screen	Dual ADC sampling
Night FCWS	Non-stretching preview	Noise reduction algorithm
Night LDWS	Multi-window switch	