A133

Quad Core
Tablet Application Processor

Overview

A133 is a highly-integrated application processor designed for mainstream tablet applications.
It integrates quad-core 64-bit Cortex™-A53 CPU and Imagination PowerVR GE8300 GPU to ensure response rapidity and running smoothness for daily application, such as on-line video, web browsing, 3D game, etc.

It supports the DRAM controller interface (DDR3/DDR4/LPDDR3/LPDDR4, and maximum capacity up to 4 GB), eMMC, NAND, and SPI NAND flash. These rich memory interfaces help tablet solutions of customers implement flexible configuration based on different requirements.
A133 also provides rich peripheral interfaces, such as MIPI-DSI/RGB/LVDS panel interface, MIPI-CSI camera interface, USB, UART, TWI, I2S, GPADC, etc.

Highlights

Powerful operation capacity

A133 integrates quad-core 64-bit Cortex™-A53 CPU up to 1.6 GHz, which has a more powerful performance to ensure response rapidity of daily application than A35 CPU; and A133 adopts the CoolFlex low-power design architecture and dynamic power consumption management technology to enable excellent energy efficiency ratio for the most scenes. And the integrated Imagination PowerVR GE8300 GPU can easily meet the computing requirements of various mainstream graphics, the GPU API supports OpenGL ES 3.2/Vulkan 1.1/OpenCL 1.2 and meets the certification requirements of the latest Android GMS.

Powerful multimedia capacity

A133 supports mainstream video decoding such as H.265/VP9/H.264 (H.265/H.264 maximum performance up to 4K@30fps), H.264 video encoding up to 1080p@60fps, display output up to FHD 1920 x 1200@60fps, and Allwinner SmartColor 2.0 display enhancement technology to provide excellent video experience for users. Analog audio interfaces support 2 ADC, 2 DAC, stereo headphone, and digital audio interfaces support I2S, DMIC, OWA, these audio interfaces meet the requirements of mainstream audio recognition solutions.

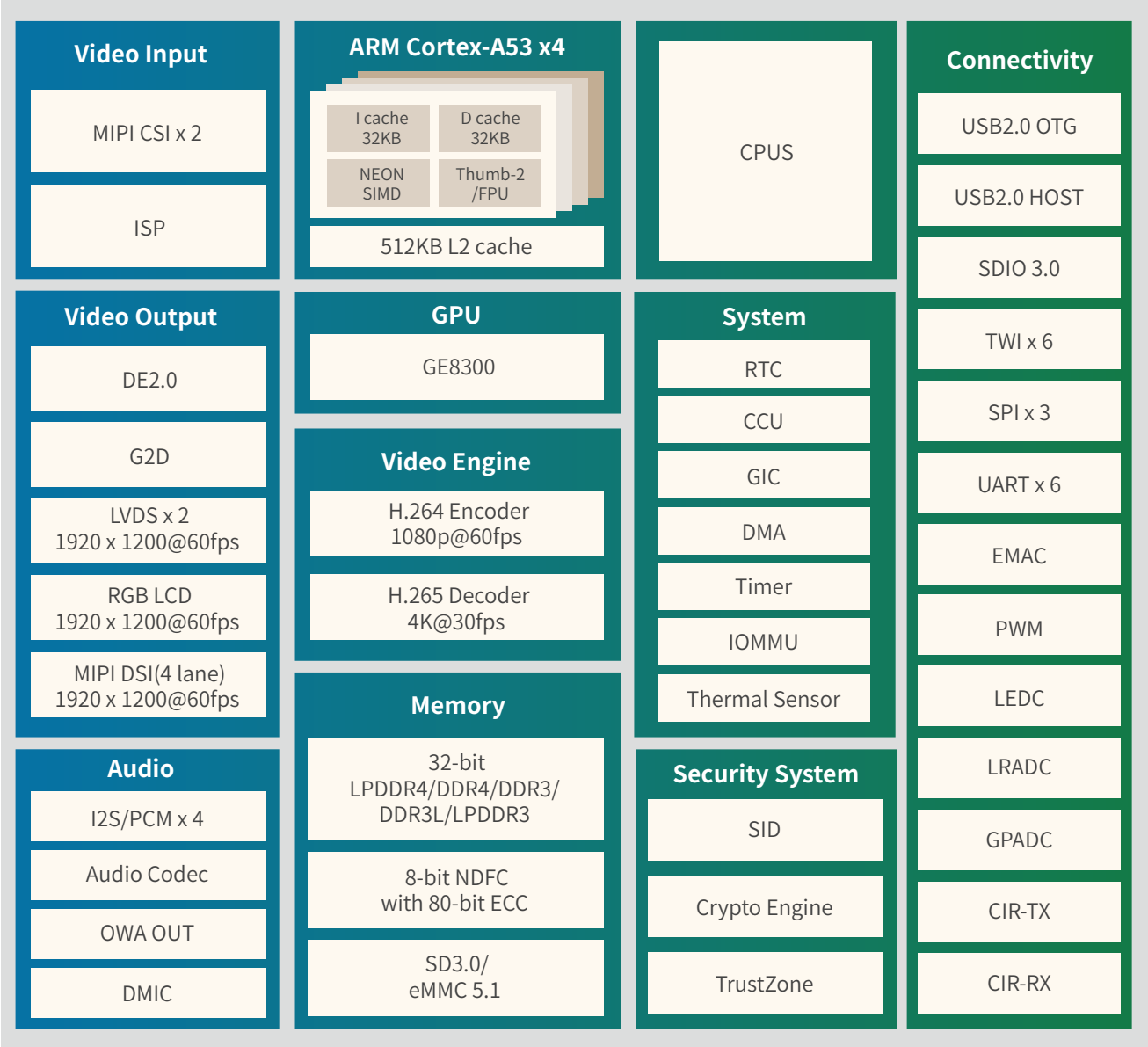
Build-in 13M ISP

A133 supports front and rear MIPI CSI cameras, and one build-in 13M ISP, which can support the mainstream camera module in the market and meet the photography requirements of the medium-low tablet.

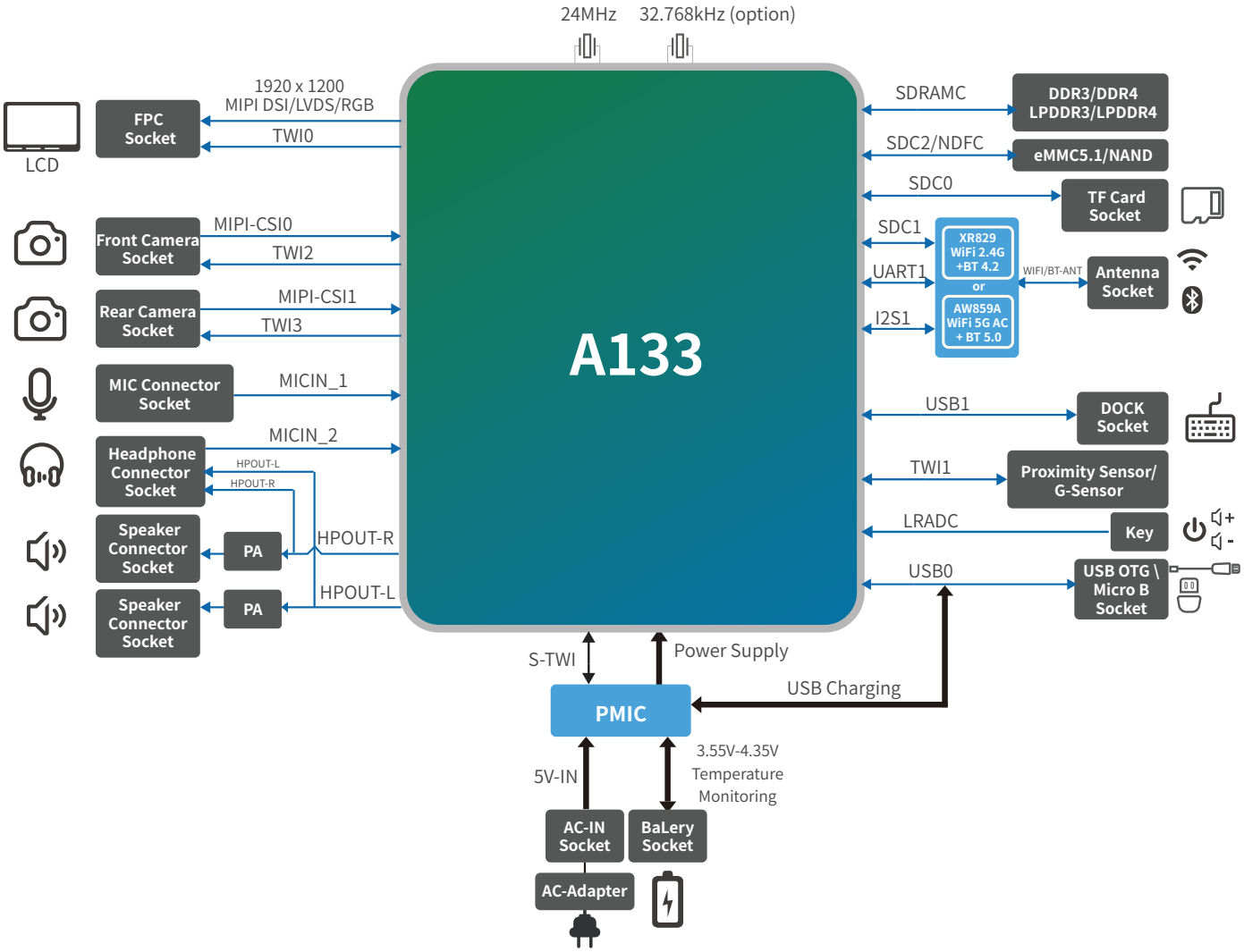
Features

CPU	• Quad-core ARM Cortex™-A53@1.6GHz • 32 KB L1 I-cache + 32 KB L1 D-cache per core, 512 KB L2 cache • Low-power CoolFlex™ power management architecture
GPU	• IMG PowerVR GE8300 • Supports OpenGL ES3.2, Vulkan1.1, OpenCL1.2
Memory	• DDR3/DDR3L/DDR4/LPDDR3/LPDDR4, 32-bit width, maximum memory capacity up to 4 GB • eMMC 5.1, 8-bit parallel NAND Flash, SPI Nand flash
Video	• H.265 video decoder 4K@30fps, H.264 video decoder 4K@30fps, VP9 video decoder 720p@30fps • H.264 video encoder 1080p@60fps • MJPEG/JPEG Baseline encoder 4K@15fps
Display	• MIPI-DSI interface, dual-link LVDS interface, RGB interface • The maximum resolution for the display is 1920 x 1200 • Allwinner SmartColor2.0 post processing for an excellent display experience
Camera	• 4 lanes MIPI-CSI@1.0Gbps • 13M@10fps or 8M@30fps ISP, supporting 3A/2D de-noise/defect pixel correction
Audio	• 2 DAC and 2 ADC • LINE-OUT/MIC-IN/Stereo headphone • 4 I2S, 8 channel DMIC, OWA OUT
Connectivity	• 2 USB2.0(USB Host x 1, USB OTG x 1) • SDIO 3.0 • SPIx3, UARTx6, TWIx6, PWM(5-ch) • EMAC, GPADC, LRADC, CIR RX&TX
PMIC	• Customized AXP707
WIFI/BT	• Allwinner XR829 802.11 b/g/n + BT4.2, or AW859A 802.11 a/b/g/n/ac + BT 5.0
OS	• Android 10.0 and above
Package	• LFBGA 346balls • 12mm x 12mm body size, 0.5mm ball pitch, 0.3mm ball size

Block Diagram



Application Diagram



ABOUT ALLWINNER

Allwinner Technology is a leading fabless design company dedicated to smart application processor SoCs and smart analog ICs. Its product line includes multi-core application processors for smart devices and smart power management ICs used by brands worldwide.

With its focus on cutting edge UHD video processing, high performance multi-core CPU/GPU integration, and ultra-low power consumption, Allwinner Technology is a mainstream solution provider for the global tablet, internet TV, smart home device, automotive in-dash device, smart power management, and mobile connected device markets. Allwinner Technology is headquartered in Zhuhai, China.

CONTACT US

For more product info, please contact service@allwinnertech.com, or scan the QR code to follow us on Wechat.