ALLWINNER

H5

Deca-core 4K OTT Box Total Solution

Key Specifications

High Perfomance CPU

- High Performance Quad-core 64-bit Cortex-A53
- Integrated multimedia acceleration engine NEON
- Hardware Java acceleration
- Integrated hardware floating-point coprocessor

3D GPU

- High Performance Hexa-core Mali450
- OpenGL ES 2.0/1.1/1.0, OpenVG 1.1, EGL
- 40 GFlops, Pixel fill rate greater than 2.7GPixel/s

Memory Control Interface

- DDR3/3L SDRAM interface, maximum 32-bit data width
- SPI NOR flash interface
- SPI NAND flash i nterface
- NAND flash interface
  - SLC/MLC flash memory
  - Maximum 64-bit error-correcting code(ECC)
- eMMC 5.0 flash interface

Video Decoding

- H.265/HEVC Main/Main 10 profile@level 5.1 high-tier
- H.264/AVC BP/MP/HP@level 5.1, H264/AVC MVC
- VP6/VP8/VP9
- MPEG2 SP@ML, MP@HL
- MPEG1
- MPEG4 SP@level 0-3, ASP@level 0-5, GMC, short header format
- AVS-P16(AVS+)/AVS JIZHUNprofile@level6.0
- VC-1 SP@ML, MP@HL, AP@level 0-3
- Support 4Kx2K decoding
- Pixel Rotate/Horizon Revert/Vertical Revert
- Pixel Scale
- Output pixel format configurable, YUV420/YV12/…

Image Decoding

- Large resolution support, up to 16384x16384
- YUV400/YUV420/YUV422/YUV444
- Picture Rotate/Horizon Revert/Vertical Revert
- Picture Scale
- Output pixel format configurable, YUV420/YV12/…

Video and Image Encoding

- High Performance Hexa-core Mali450
- 1080p@60fps/2x1080p@30fps/4x720p@30fps simultaneous encoding
- Variable bit rate(VBR) or constant bit rate(CBR) mode, macroblock level bit rate control
- Low-delay encoding
- Encoding of multiple region of interest(ROIs)
- Picture Rotate
- Picture free scale up/down, scale ratio from 1/4 to 4
- Full input format support, NV12/NV21/YUV420SP/…

Audio Encoding/Decoding

- MPEG L1/L2
- AAC-LC and HE AAC V1/V2 decoding
- APE, FLAC, OGG, AMR-NB, and AMR-WB decoding
- G.711(u/a) audio decoding
- G.711(u/a), AMR-NB, AMR-WB, and AAC-LC encoding

TS Demultiplexing/PVR

- 4 TS inputs, SSI or SPI mode
- DVB-CSA/AES/DES descrambling
- Recording of scrambled and non-scrambled streams

Security Processing

- Trusted execution environment(TEE)
- Secure OS Support GP standard

- Secure boot
- Secure Storage
- Secure upgrade
- Protection for JTAG
- 2K bits EFuse
- Digital rights management(DRM)
- Downloadable conditional access(CA)(DCAS)
- HDCP 1.4 protection for HDMI outputs

Graphics and Display Processing

- 2 Display device, dual display(same or different content)
- For the main display device
  - 4 video layer(also can support graphic)
  - 12 graphic layers
  - 4 alpha blending channel, potter duff compatible blending operation
- For the auxiliary display device
  - 4 video layer(also can support graphic)
  - 4 graphic layers
  - 2 alpha blending channel, potter duff compatible blending operation
- On line video processing, ultra-low-delay
- Independent scaler for each channel, anti-alias-filter;
- Letter box and PanScan
- Full format 3D video processing and display
- Full-hardware anti-aliasing and anti-flicker
- Color space conversion(CSC) with configurable coefficients
- Deinterlacing
- Sharpening, adaptive detail/edge enhancement
- Saturation, adaptive color enhancement
- Contrast enhancement, black/white level stretch
- flesh-tone-rectify

Audio/Video Interface

- PAL and NTSC standard output, and forcible standard conversion
- Aspect ratio of 4:3 or 16:9, forcible aspect ratio conversion, and free scaling
- 4Kx2K/1080P/1080I/720P/576P/576I/480P/480I output
- HD and SD outputs from the same source
- HDMI TX with HDCP
- Analog video interface
  - One CVBS interface
  - One embedded VDAC
- Audio interface
  - Two audio-left and audio-right input interface
  - Audio-left and audio-right output interface
  - S/PDIF interface
  - Two embedded ADAC
  - Two I2S/PCM digital audio input/output
  - HDMI audio output

Peripheral Interfaces

- Three USB 2.0 host x 3
- USB 2.0 OTG
- 10/100 Mbit/s Ethernet port, E-PHY integrated
- Giga Ethernet MAC
- Three 4-bit SDIO 3.0 interfaces
- 5 UART interfaces
- Two smart card interface, ISO7816
- IR receiver
- LED and keypad control interface
- Four TWI interfaces
- Multiple general-purpose input/output(GPIO) interfaces

Others

- Various boot mode
- Boot program download and execution over a serial port or USB port
- Integrated standby processor, supporting various low-power modes and less than 30mW standby power consumption
- Low-power design such as adaptive voltage scaling(AVS) and dynamic voltage and frequency scaling(DVFS)
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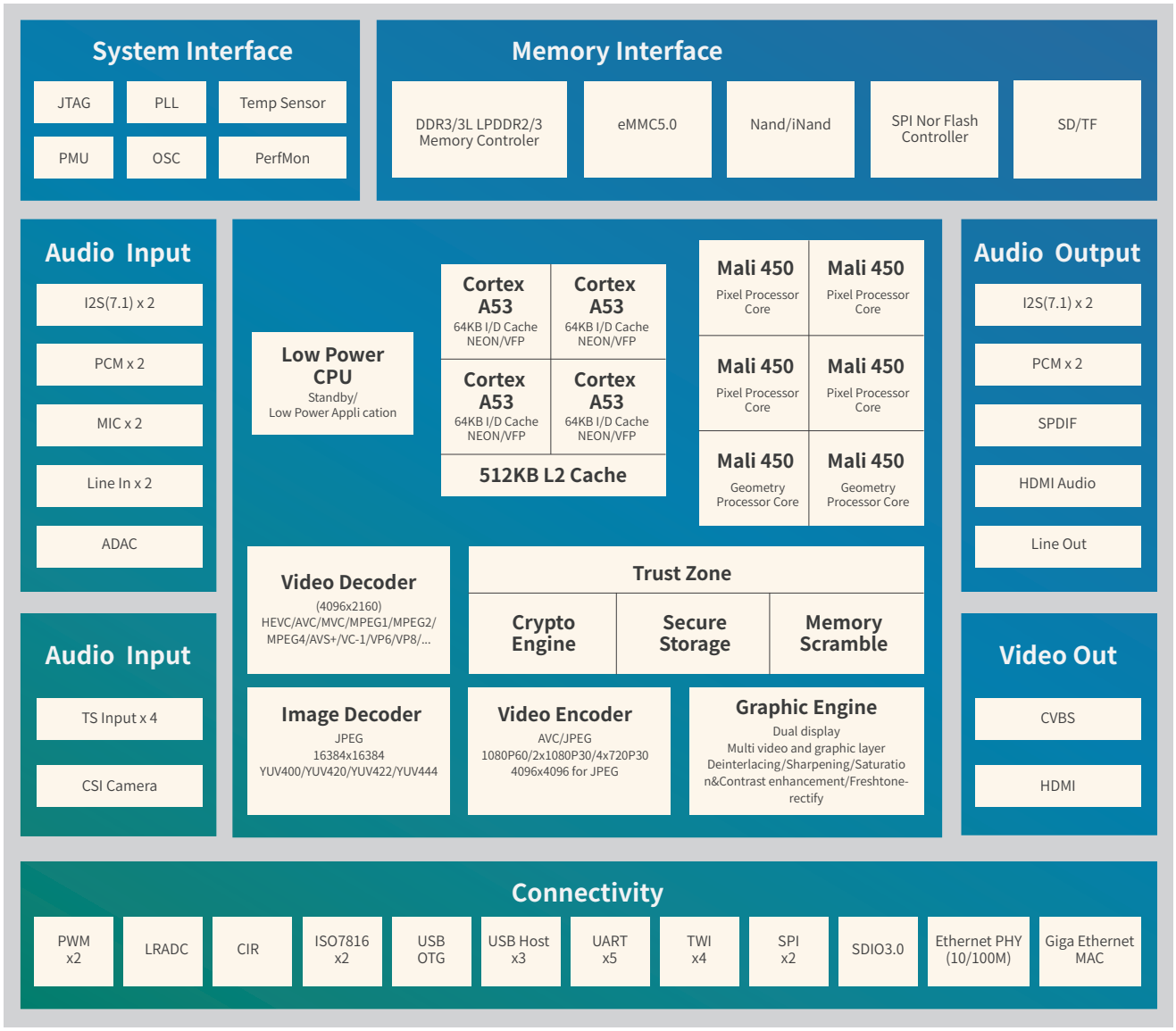
- Ultra low-power design
- Plastic ball grid array package(PBGA)

Functional Block 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.