

Amlogic A311d2 Development Board

Specifications

Model No.	Amlogic A311D2 Dvelopment Board
CPU	Amlogic A311D2 Quad Core ARM Cortex A73 and Dual Core ARM Cortex A53 1.98Ghz
GPU	ARM Mali-G52 MP4 (6EE) OpenGL ES 3.2, Vulkan 1.1 and OpenCL 2.0
RAM	DDR4 2GB/4GB
ROM	16GB eMMC (Expandable up to 128GB)
OS	Android 9.0

Video&Audio CODEC

Decoding resolution	Support 4K H265 10Bit, H.264, AVS, MPEG-2 and many other formats
Multimedia Support	Support MPEG1, MPEG2, MPEG4, H.264, WMV, MKV, TS, flv and other video formats; Support MP3 and other audio formats; support JPG, JPEG, BMP, PNG, GIF and other photo formats

Port

Video output	1 channel LVDS 40-pin 2.0mm double-pin, can support 8bit, 10bit screen; 1 channel HDMI output; 1 channel AV output
Video input	x1, MIPI CSI
Audio ouput	4-pin 2.5mm socket 25W@2 amplifier and 3W@2 speaker
Network interface	x1, 10M/100M Ethernet WIFI+BT, 2.4G single band or 2.4G/5G dual band for options PCIE slot (4G) x1 or M.2 slot (4G) x1 for options
USB2.0 interface	USB OTG x1 (available for HOST) USB HOST x7
Backlight interface	x2, 6-pin 2.0mm socket
Infrared interface	x1, 7-pin 2.0mm socket, supports both red and green LED indicators
Function expansion port	Serial ports x4
TF card slot	x1
SIM card slot	x1
RTC	Supports time synchronization

Power

Power Supply	12V, 2.5DC Connector
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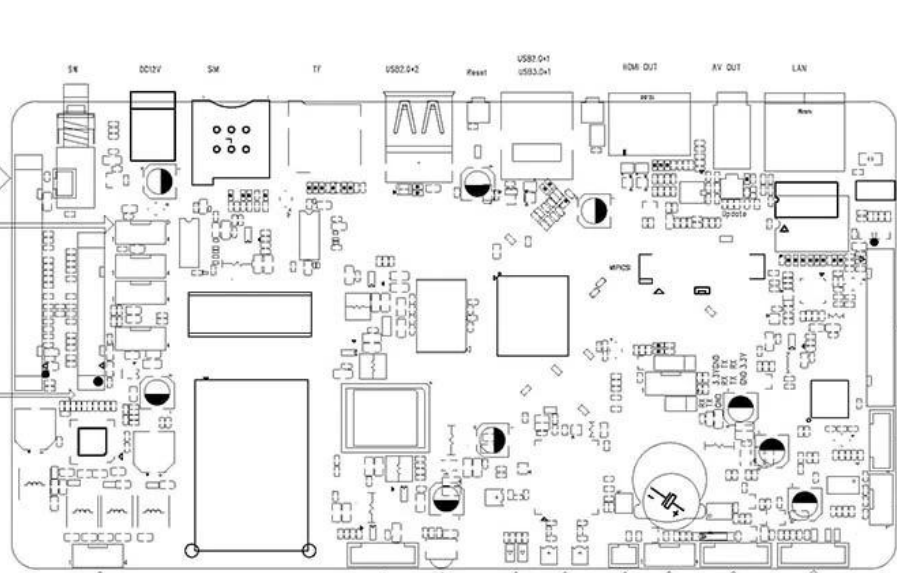
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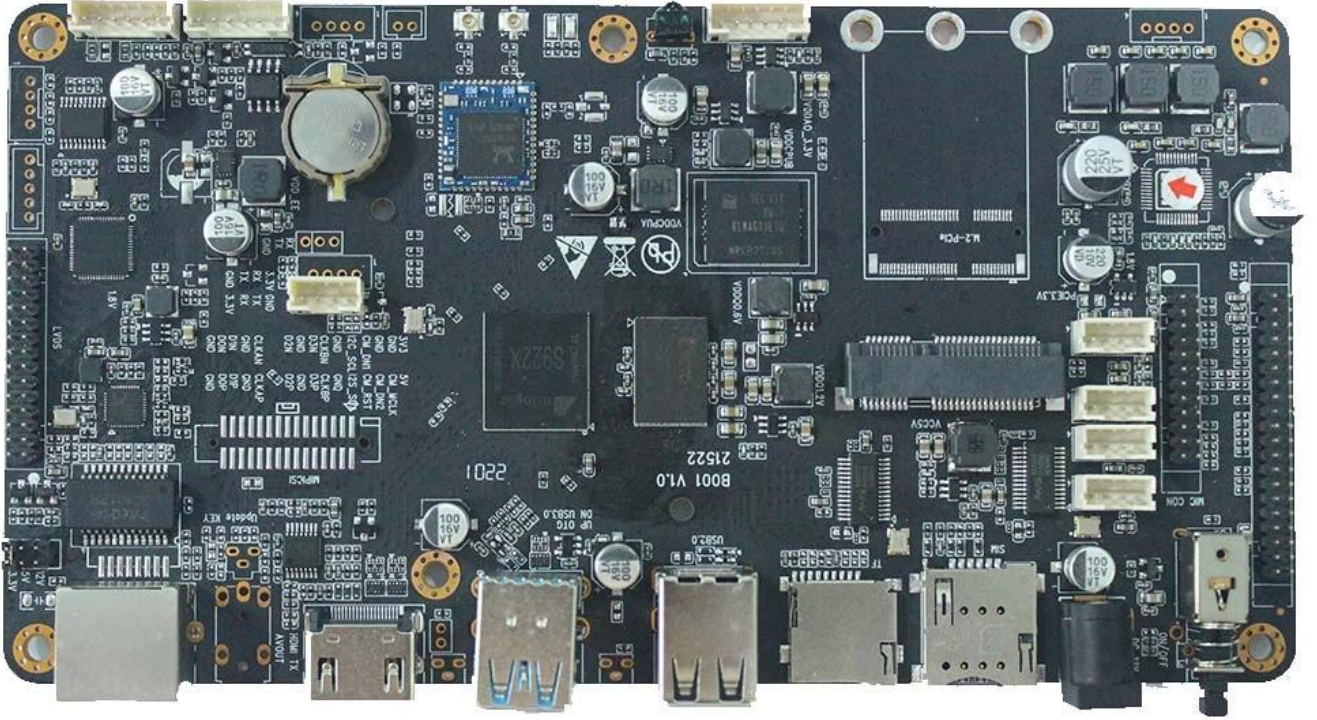
Supported configuration: PCIe2.0 port + USB2.0 Host, or USB3.0 without PCIe

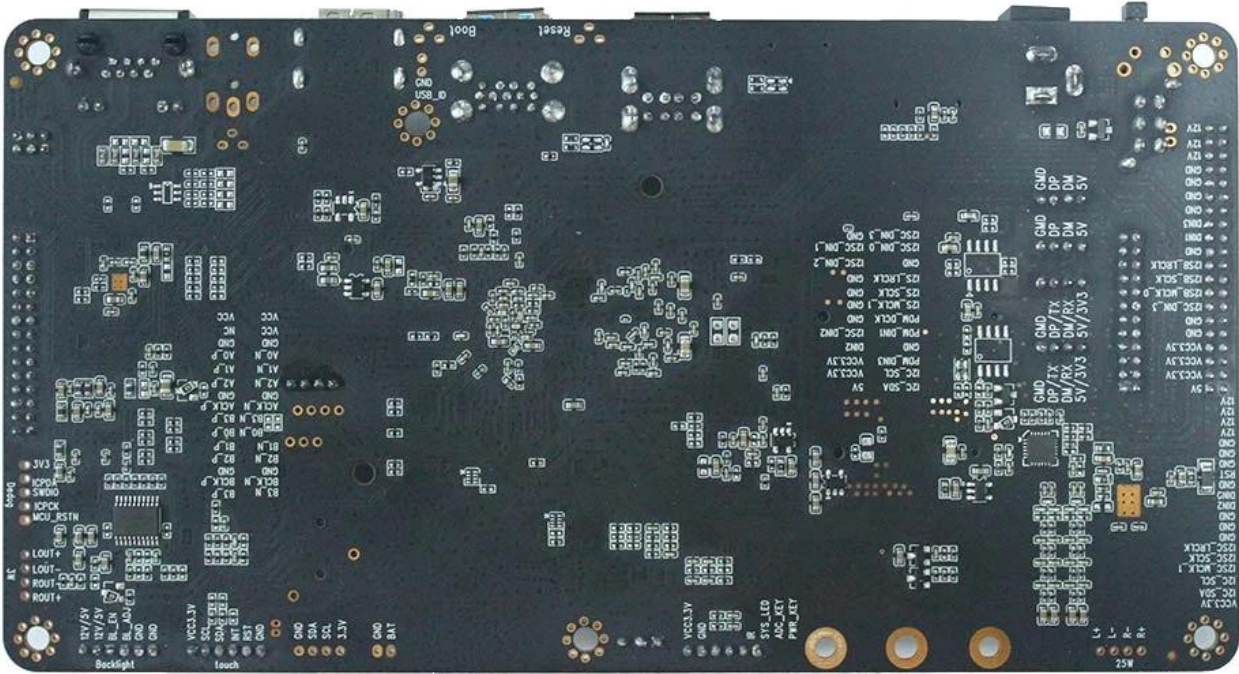
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LVDS





Board Introduction

Amlogic A311D2 Android Development Board multimedia network player-LCD driver integrated board adopts Amlogic A311D2 12nm high-end chip, which supports UHD 4K@60fps hardware video decoding. It also supports supports H.265 10-bit, H.264 and AVS+ and many other formats. Support HDR10 and HLG high dynamic range processing, with multi-channel UART and USB interfaces. Support Bluetooth, WIFI, 4G and Ethernet functions. Support AV serial use, SD card expansion. Perfectly supports all kinds of touch screens, suitable for high-performance intelligent display terminal equipment, industrial automation terminal, computer vision/algorithm, 3D experience, game/amusement equipment, high-performance face recognition computing/storage, AI intelligence, etc. It can be widely used as a high-end intelligent motherboard for various industries such as finance, advertising, security, transportation, and public transportation.

(1) With various interfaces

- 1 channel LVDS video output (40pins)
- 1 channel HDMI video output
- 5 channels USB2.0
- 4 channels RS232 (can be modified to USB2.0 by patch)
- 1 channel MIPI CSI

- 1 channel AV output
- 1 channel I2C
- I2SC/IS2B
- 1 channel 25W super power amplifier and 3W speaker interface
- (2) Hybrid networking to break through network constraints
- Support wired, WiFi and 4G access, can realize multi-network hybrid networking
- (3) Easy to operate & fast maintenance
- Support breakpoint playback
- Super multi-period timing switch function
- Support U disk loading or direct playback
- Support automatic repair, remote upgrade, intelligent domain name resolution

Chip Performance

CPU Sub-system

- (1) Quad Core ARM Cortex-A73 and Dual Core ARM Cortex-A53 CPU
- (2) ARMv8-A architecture with Neon and Crypto extensions
- (3) Unified system L2 cache
- (4) Build-in Cortex-M4 core for always on processing
- (5) Advanced TrustZone security system
- (6) Application based traffic optimization using internal QoS-based switching fabrics

3D Graphics Processing Unit

- (1) ARM Mali-G52 MP4 (4ppc) GPU
- (2) 8-wide warps, 2xdual texture pipe, 6x8-wide execution engines(EE)
- (3) Concurrent multi-core processing
- (4) OpenGL ES3.2, Vulkan 1.0 and OpenCL 2.0 support

Video/Picture CODEC

- (1) Amlogic Video Engine (AVE) with dedicated hardware decoders and encoders
- (2) Support multi-video decoder up to 4Kx2K@60fps+1x1080P@60fps
- (3) Supports multiple "secured" video decoding sessions and simultaneous decoding and encoding
- (4) Video/Picture Decoding
 - VP9 Profile-2 up to 4Kx2K@60fps
 - H.265 HEVCMP-10@L5.1 upto 4Kx2K@60fps
 - AVS2-P2 Profile up to 4Kx2K@60fps
 - H.264 AVCHP@L5.1 upto 4Kx2K@30fps
 - H.264 MVC up to 1080P@60fps
 - MPEG-4 ASP@L5 up to 1080P@60fps (ISO-14496)
 - WMV/VC-1 SP/MP/AP up to 1080P@60fps
 - AVS-P16(AVS+) /AVS-P2 JiZhun Profile up to 1080P@60fps
 - MPEG-2 MP/HL up to 1080P@60fps(ISO-13818)
 - MPEG-1MP/HL upto 1080P@60fps(ISO-11172)
 - RealVideo 8/9/10 up to 1080P@60fps
- Multiple language and multiple format sub-title videosupport
- MJPEG and JPEG unlimited pixel resolution decoding(ISO/IEC-10918)
- Supports JPEG thumbnail, scaling, rotation and transition effects
- Supports *.mkv, *.wmv, *.mpg, *.mpeg, *.dat, *.avi, *.mov, *.iso, *.mp4, *.rm and *.jpg file formats
- (5) Video/Picture Encoding
 - Independent JPEG and H.265/H.264 encoder with configurable performance/bit-rate
 - JPEG image encoding
 - H.265/H.264 video encoding up to 1080P@60fps with low latency

Video Output

- (1) Built-in HDMI 2.1 transmitter including both controller and PHY with CEC, Dynamic HDR and HDCP 2.2, 4Kx2K@60 max resolution output

- (2) CVBS 480i/576i standard definition output
- (3) Supports all standard SD/HD/FHD video output formats: 480i/p, 576i/p, 720p, 1080i/p and 4Kx2K
- (4) 4-lane MIPI DSI interface, resolution up to 1920*1080 with rotation and panel calibration

Chip Performance

CPU Sub-system

- (7) Quad Core ARM Cortex-A73 and Dual Core ARM Cortex-A53 CPU
- (8) ARMv8-A architecture with Neon and Crypto extensions
- (9) Unified system L2 cache
- (10) Build-in Cortex-M4 core for always on processing
- (11) Advanced TrustZone security system
- (12) Application based traffic optimization using internal QoS-based switching fabrics

3D Graphics Processing Unit

- (5) ARM Mali-G52 MP4 (4ppc) GPU
- (6) 8-wide warps, 2x dual texture pipe, 6x8-wide execution engines(EE)
- (7) Concurrent multi-core processing
- (8) OpenGL ES3.2, Vulkan 1.0 and OpenCL 2.0 support

Video/Picture CODEC

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VP9 Profile-2 up to 4Kx2K@60fps

H.265 HEVCMP-10@L5.1 upto 4Kx2K@60fps

AVS2-P2 Profile up to 4Kx2K@60fps

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Independent JPEG and H.265/H.264 encoder with configurable performance/bit-rate

JPEG image encoding

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Video Output

- (5) Built-in HDMI 2.1 transmitter including both controller and PHY with CEC, Dynamic HDR and HDCP 2.2, 4Kx2K@60 max resolution output
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Unlocking Innovation with the Amlogic A311D2 Development Board

The Amlogic A311D2 Development Board is a versatile and powerful platform that empowers developers, hobbyists, and innovators to bring their ideas to life. Here's why it's the perfect choice for your next project:

1. **High-Performance Hardware:** Powered by the Amlogic A311D2 chipset, featuring a quad-core Cortex-A73 CPU and a quad-core Cortex-A53 CPU, coupled with a powerful ARM Mali-G52 GPU, the development board delivers exceptional performance for demanding applications.
2. **Flexible Connectivity:** The board offers a wide range of connectivity options, including HDMI, USB, Ethernet, Wi-Fi, Bluetooth, and more, ensuring compatibility with a variety of peripherals and accessories.
3. **Rich Multimedia Capabilities:** With support for 4K video playback, HDR imaging, and advanced audio processing, the development board enables immersive multimedia experiences and content creation.
4. **Expandability:** The board features expansion headers and interfaces, allowing for easy integration of additional modules, sensors, and peripherals to expand functionality and capabilities.
5. **Comprehensive Development Environment:** Developers benefit from a comprehensive development environment, including SDKs, libraries, documentation, and community support, facilitating rapid prototyping and software development.
6. **Versatile Applications:** From IoT devices and digital signage to media players and gaming consoles, the Amlogic A311D2 Development Board is suitable for a wide range of applications and use cases.
7. **Reliable Performance:** Built with quality components and rigorous testing, the development board offers reliable performance and stability, ensuring smooth operation even in demanding environments.

Whether you're a professional developer or a hobbyist, the Amlogic A311D2 Development Board provides the tools and capabilities you need to unleash your creativity and build innovative solutions that push the boundaries of technology.