

# Digital Signage Solutions Widely used in finance, advertising, security, transportation, public transportation, etc

Specifications	
Model No.	Amlogic S922X Digital Signage Solutions
CPU	Amlogic S922X 64-bit quad core ARM® Cortex™ A73 CPU and dual core ARM® Cortex™ A53 CPU
GPU	ARM MaliTM-G52 MP4 GPU processor
ROM	2GB/4GB LPDDR4
Internal Storage	16GB/64GB eMMC
OS	Android 9.0
Video&Audio CODEC	
Video/Picture CODEC	Amlogic Video Engine (AVE) with dedicated hardware decoders and encoders HW UHD 4K H.265 75fps 10-bit video decoder & low latency 1080p H.265/H.264 60fps encoder Support multi-video decoder up to 4Kx2K@60fps+1x1080P@60fps Supports multiple "secured" video decoding sessions and simultaneous decoding and encoding Video/Picture Decoding VP9 Profile-2 up to 4Kx2K@60fps H.265 HEVC MP-10@L5.1 up to 4Kx2K@60fps AVS2-P2 Profile up to 4Kx2K@60fps H.264 AVC HP@L5.1 up to 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-1 MP/HL up to 1080P@60fps (ISO-11172) RealVideo 8/9/10 up to 1080P@60fps H.265/H.264 video encoding up to 1080P@60fps with low latency Multiple language and multiple format sub-title video support 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 Supports Dolby VisionOptional, HDR10, HDR10+, HLG and PRIME HDR processing
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	Built-in HDMI 2.1 transmitter including both controller and PHY with CEC, Dynamic HDR and HDCP 2.2, 4Kx2K@60 max resolution output CVBS 480i/576i standard definition output Supports all standard SD/HD/FHD video output formats: 480i/p, 576i/p, 720p, 1080i/p and 4Kx2K 4-lane MIPI DSI interface, resolution up to 1920*1080 with rotation and panel calibration Supports MP3, AAC, WMA, RM, FLAC, Ogg and programmable with 7.1/5.1 down-mixing Built-in serial digital audio SPDIF/IEC958 input/output and PCM input/output 3 built-in TDM/PCM/I2S ports with TDM/PCM mode up to 84kHz x32bits x 8ch or 96kHz x 32bits x 32ch and I2S mode up to 384kHz x 32bitsx8ch Digital microphone PDM voice input with programmable CIC, LPF & HPF, support up to 8 DMICs Built-in stereo audio DAC Supports concurrent dual audio stereo channel output with combination of analog+PCM or I2S+PCM
Decoder Format	HD MPEG1/2/4, H.265/HEVC, HD AVC/VC-1, RM/RMVB, Xvid/DivX3/4/5/6, RealVideo8/9/10
Media Format	Avi/Rm/Rmvb/Ts/Vob/Mkv/Mov/ISO/wmv/asf/flv/dat/mpg/mpeg
Music Format	MP3/WMA/AAC/WAV/OGG/DDP/TrueHD/HD/FLAC/APE
Photo Format	HD JPEG/BMP/GIF/PNG/TIFF
Port	
USB host	USB2.0, Max480Mbps/USB3.0, Max5.1Gbps
SIM	MICRO SIM
HDMI	HDMI 2.2/1ch Lvds/1ch EDP
LAN	RJ45 wire Ethernet connection 100/1000M Ethernet support
WiFi/ Bluetooth	AP6398S(Wi-Fi+BT) 2.4G+5.8G
4G	PCIE Port
TF	microSD(Max 128G)
HDD	Support SATA Max2TB(Not included)
Power	
Power Supply	12V DC/3AΦ5.5*Φ2.5mm

This product is the network Android system motherboard, which is suitable for intelligent display terminal equipment, industrial automation terminal, computer vision/algorithm, 3D experience, game/entertainment equipment, high-performance Face Recognition calculation/storage, AI intelligence with high performance requirements. It can be widely used as the high-end demand intelligent mainboard of finance, advertising, security, transportation, public transportation and other industries.

This product adopts the latest generation of 12 nm ultra-low power AI chip s922x of Amlogic. It is an advanced application processor, integrating a powerful CPU, GPU subsystem, secure 4K video codec engine and first-class HDR image processing. The CPU of S922x main system adopts large and small architecture, which integrates four core arm cortex-a73 CPU cluster and dual core cortex-a53 cluster with unified secondary cache to improve system performance. Each CPU core includes a separate neon SIMD coprocessor to improve the software media processing capacity. Ave-10 can decode 4kx2k resolution video at a speed of 75 frames/second, and has a complete trusted video path (TVP) for security applications, supporting complete formats, including: MVC, MPEG-1/2/4, vc-1/WMV, AVS, AVS +, avs2 realvideo, MJPEG stream, H.264, h265-10, VP9 and JPEG pictures without size restrictions. The independent encoder can encode JPEG or h.265/h.264 format, up to 1080p, 75 frames per second. It supports 4kx2k @ 60fp (3840 \* 2160) output of hdmi2.2 interface and 4K point screen of V by one interface. It supports HDCP 2.2, stereo audio DAC, CVBS output, 4-channel Mipi DSI interface, multi TDM, PCM, I2S and SPDIF digital audio I/O interface, 8-Channel far-field PDM digital microphone (dmic) input and DVP camera interface. The product comes with 2x2 WiFi (supporting 2.4G and 5.8G dual frequency) + 4.1 wireless network module, supporting Gigabit Ethernet interface and infrared remote control, keyboard and mouse operation.

### Highlights

- o Amlogic 64-bit quad core ARM® Cortex™ A73 CPU and dual core ARM® Cortex™ A53 CPU
- o ARM Mali-G52 MP4 GPU processor
- o HW UHD 4K.H.265 75fps 10-bit video decoder & low latency 1080p H.265/H.264 60fp sencoder
- o Dolby Vision and HDR10, HDR10+, HLG and PRIME HDR video processing
- o Build in Cortex-M4 core for always on processing
- o TrustZone based security for DRM video streaming
- o WIFI, BT,USB, SD, Ethernet, Analog Audio
- o Power management auxiliary processor

Amlogic S922X is an advanced application processor designed for Android hybrid OTT/IPTV Set Top Box(STB) and high-end media box applications. It integrates a powerful CPU, GPU subsystem, a secured 4K video CODEC engine and a best-in-class HDR image processing pipeline with all major peripherals to form the ultimate high-performance multimedia AP.

The main system CPU is based on Big. Little architecture which integrates a quad-core ARM Cortex-A73 CPU cluster and a dual-core Cortex-A53 cluster with united L2 cache to improve system performance. Each CPU core includes the separate NEON SIMD co-processor to improve software media processing capability.

The graphic subsystem consists of two graphic engines and a flexible video/graphic output pipeline. The ARM Mali-G52 MP4 GPU handles all OpenGL ES 3.2 Vulkan 1.0 and OpenCL 2.0 graphic programs, while the 2.5D graphics processor handles additional scaling, alpha, rotation and color space conversion operations. Together, the CPU and GPU handle all operating system,

networking, user-interface and gaming related tasks. The video output pipeline includes Dolby Vision optional HDR10, HDR10+, HLG and PRIME HDR processing, REC709/BT2020 processing, motion adaptive edge enhancing de-interlacing, flexible programmable scalar, and many picture enhancement filters before passing the enhanced image to the video output ports.

Amlogic Video Engine (AVE-10) offloads the Cortex-A53 CPUs from all video CODEC processing. It includes dedicated hardware video decoder and encoder. AVE-10 is capable of decoding 4Kx2K resolution video at 75fps with complete Trusted Video Path (TVP) for secure applications and supports full formats including MVC, MPEG-1/2/4, VC-1/WMV, AVS, AVS+, AVS2 RealVideo, MJPEG streams, H.264, H.265-10, VP9 and also JPEG pictures with no size limitation. The independent encoder is able to encode in JPEG or H.265/H.264 up to 1080p at 60fps.

Amlogic S922X integrates all standard audio/video input/output interfaces including a HDMI 2.1 transmitter with 3D, Dynamic HDR, CEC and HDCP 2.2 support, stereo audio DAC, a CVBS output, 4-lane MIPI DSI interface, multiple TDM, PCM, I2S and SPDIF digital audio input/output interfaces, 8 channel far-field PDM digital microphone (DMIC) inputs and a DVP camera interface.

Amlogic S922X also integrates a set of functional blocks for digital TV broadcasting streams. The built-in two demux can process the TV streams from the serial and parallel transport stream input interface, which can connect to external tuner/demodulator.

The processor has rich advanced network and peripheral interfaces, including a 10/100/1000M Ethernet MAC with RGMII, 10/100M Ethernet PHY, one USB XHCI OTG 2.0 port, one USB 3.0 and PCIe







In today's dynamic business landscape, effective communication is key to success. Digital signage has emerged as a powerful tool for delivering targeted messages, enhancing customer experiences, and driving business outcomes across various industries. Our comprehensive digital signage solutions offer unmatched versatility and performance, making them the preferred choice for businesses in finance, advertising, security, transportation, public transportation, and beyond.

**Finance Sector:** In the finance sector, digital signage plays a crucial role in enhancing customer engagement, improving service efficiency, and promoting financial products and services. From bank branches to financial advisory firms, digital displays are used to showcase real-time financial data, market trends, promotional offers, and educational content. Our digital signage solutions empower financial institutions to deliver personalized messages, streamline queuing processes, and create immersive customer experiences.

**Advertising Industry:** Digital signage has revolutionized the advertising industry by providing dynamic, eye-catching displays that capture audience attention and drive brand awareness. Whether in retail environments, outdoor advertising spaces, or corporate offices, our digital signage solutions enable advertisers to deliver targeted messages, promotions, and product information in real-time. With advanced scheduling and content management capabilities, advertisers can maximize the impact of their campaigns and measure audience engagement for better ROI.

**Security Applications:** In security applications, digital signage serves as a critical tool for

enhancing public safety, emergency communication, and crowd management. From airports and transportation hubs to government buildings and public venues, digital displays provide timely information, instructions, and alerts to help mitigate risks and ensure public awareness. Our digital signage solutions offer robust reliability, remote access, and emergency notification features to support security personnel in their mission-critical operations.

**Transportation Sector:** Digital signage has transformed the transportation sector by improving passenger communication, wayfinding, and operational efficiency. In airports, train stations, and bus terminals, digital displays provide real-time travel information, gate updates, and directions to enhance the passenger experience. Our digital signage solutions integrate seamlessly with transportation systems, offering scalable deployment options and integration with existing infrastructure for streamlined operations.

**Public Services:** Digital signage is widely adopted in public services such as government offices, healthcare facilities, educational institutions, and municipal buildings. From interactive kiosks to digital menu boards, our solutions enable public service providers to deliver essential information, services, and announcements to citizens and visitors. With customizable templates, multi-language support, and ADA-compliant features, our digital signage solutions cater to diverse needs and enhance accessibility for all users.

In conclusion, our digital signage solutions offer a comprehensive suite of features and capabilities to address the unique requirements of finance, advertising, security, transportation, public transportation, and various other industries. With cutting-edge technology, intuitive software platforms, and unparalleled support, we are committed to empowering businesses and organizations worldwide to harness the full potential of digital signage for communication, engagement, and success.