NS720 — High-End Display SoC Product Overview

Overview

The NS720 is a dedicated SoC designed for next-generation high-end commercial display systems. It integrates core functions of ultra-high-definition video processing, real-time interaction, and intelligent network streaming to provide a full-stack display solution on a single chip. With built-in dual 8K display engines, an AV-over-IP core, and a high-precision touch and gesture processing unit, it advances commercial displays towards 8K ultra-high definition, interactive intelligence, and lighter installation. Additionally, it features a RISC-V system management core for efficient display configuration, network management, and security control.

Key Features

Basic Specifications

- Display Engine: Dual independent channels, each channel 8K@60Hz or 4K@144Hz, supports different/same screen display
- RISC-V System Management Core: Responsible for display control, network management, and security processing
- Power Consumption: < 15W at 8K full load, fanless design support
- Reliability: MTBF > 100,000 hours

Display and Picture Quality Engine

- Interfaces: 2× HDMI 2.1 (HDCP 2.3), 2× DisplayPort 2.0, 1× eDP 1.4, 1× MIPI DSI
- Color Processing: 12-bit internal processing, BT.2020 / DCI-P3, 3D-LUT hardware calibration (33×33×33)
- HDR: HDR10, HDR10+, HLG, Dolby Vision (firmware), dynamic metadata analysis
- Image Enhancement: MEMC (frame interpolation to 120Hz), super-resolution reconstruction (2×/4×), detail/contrast/skin tone enhancement
- Layer Processing: 6-layer hardware overlay, scaling, rotation, mirror, transparency blending, PIP/POP support

Video Decode and Processing

- Video Decode: 4Kp60 or 8Kp30 (HEVC/H.264/AV1), supports simultaneous decoding of two 4Kp60 streams

AV-over-IP and Network

- AV-over-IP: SMPTE ST 2110 lightweight IP core, NDI® hardware acceleration, end-to-end latency < 80ms (4K@60Hz)
- Network: Dual 10GbE MAC (RGMII/XFI), LACP, VLAN tag support, PoE++ powered display capability

Interaction and Touch

- Touch: USB/I2C multi-touch (up to 40 points) support, stroke prediction algorithm
- Gesture Recognition: Built-in VPU acceleration (swipe, zoom, etc.)
- Interaction Latency: Touch-to-display < 16ms
- Audio: 8-channel I2S, S/PDIF, ARC/eARC, hardware audio mixing

Security and Management

- Secure boot chain, Widevine L1, PlayReady SL3000, hardware decode path encryption
- Management and Deployment: Remote batch configuration, OTA firmware updates, Docker containerization, RESTful API
- Software Ecosystem: Android 12 / Linux 5.15, display management middleware, compatible with major CMS

Target Applications

Ultra-High-Definition Digital Signage (8K advertising walls, transportation hub information displays, museum immersive exhibitions)

Smart Collaboration Conference Systems (4K/8K video conferencing + electronic whiteboard integrated terminals)

Professional AV Integration Projects (broadcast monitor walls, sports broadcasting multi-screen, virtual production real-time rendering display)