NS710 — Edge Vision SoC Product Overview

Overview

The NS710 is a highly integrated system-on-chip designed for intelligent vision edge computing. It integrates multi-channel high-definition video processing, efficient data management, and a stable system architecture to provide reliable and efficient edge computing capabilities for scenarios such as smart security and AIoT gateways. Utilizing a heterogeneous integrated architecture, it incorporates a multi-core RISC-V processor operating at up to 1.8GHz, a vision processing unit supporting simultaneous decoding of eight 4K video channels, a hardware-level storage security module, and a 10GbE MAC.

Key Features

Basic Specifications

- CPU: Multi-core RISC-V processor, up to 1.8GHz, SMP, vector extension support
- Memory: 32-bit DDR3/DDR4/LPDDR4, up to 4GB, frequency 1600MHz
- Storage Interfaces: eMMC 5.1, SDIO 3.0, SATA 3.0 (optional), boot from eMMC/SPI NOR Flash support
- Power Consumption: 6–8W at full load, < 0.5W in standby
- Temperature Range: -40°C to +85°C (Industrial grade)

Video Processing Capability

- Video Decode: 8-channel 4Kp30 or 16-channel 1080p30 simultaneous decode (H.265/H.264/VP9/JPEG), latency < 50ms
- Video Encode: 2-channel 1080p30 or 1-channel 4Kp30 hardware encode (H.265/H.264)
- ISP: 3D noise reduction, Wide Dynamic Range (WDR), auto white balance/exposure/focus, maximum input 8M pixels
- Display Output: HDMI 2.0 (4Kp60) and MIPI DSI (1080p60), multi-layer overlay and alpha blending

AI and Vision Acceleration

- Built-in lightweight NPU (optional), compute power 1.0 TOPS
- TensorFlow Lite / ONNX model support
- Hardware-accelerated AI inference (object detection, classification, etc.)

Network and Interfaces

- Network: 1 x 10GbE MAC (RGMII/XGMII), 2 x Gigabit MAC (RGMII/RMII), partial TSN feature support
- Peripheral Interfaces: USB 2.0/3.0 (Host/Device), UART ×4, I2C ×4, SPI ×2, GPIO ×32, PWM ×4, ADC ×2
- Real-Time Clock: Built-in RTC, external battery support

Security and Reliability

- Secure Boot (RSA/ECC signature verification)
- Hardware Cryptographic Engine (AES/SHA/RSA)
- One-Time Programmable Memory (OTP)
- Storage Region Isolation
- Dynamic Voltage and Frequency Scaling (DVFS), Idle/Sleep/Deep Sleep support

Software and Development Tools

- Operating System: Linux (Kernel 5.10+) BSP, Docker containerization support
- Development Tools: Complete SDK, cross-compilation toolchain, debugger, performance profiling tools

Target Applications

Smart NVR

AIoT Edge Gateway

Smart Traffic / Energy Monitoring

Outdoor Security Equipment