NVS2300 is a high performance multi-codec (H.264/MPEG/MJPEG) IP camera SoC. It integrates a 500MHz ARM9 processor with two 32KB I/D caches, high quality ISP, high performance H.264 encoder, MPEG4 encoder, MJPEG encoder, and most efficient peripherals. Built-in DDR2 controller and NAND/NOR flash controller also play an important role for total BOM cost down. It has fully-hardwired crypto accelerator, SD card controller and high efficient audio DMA Interface module. NVS2300 will be one of the best cost-effective and performance-effective development platforms for various network security and IP camera applications.

**Features**

- **ARM9 RISC CPU**
  - up to 533MHz, 32KB I/D-Cache, MMU
- **DDR2 controller**
  - 32bit DDR II-533 SDRAM interface
- **Video interface**
  - 2-Ch of BT.656 or 1-Ch of BT.1120 video input
  - 1-Ch of BT.656 video output
  - Maximum input capture resolution up to 1920×1080
  - OSD (256 programmable 12×16 fonts)
- **High quality ISP**
  - Supports Sony/Sharp CCD sensor
  - Supports Omnivision/Micron CIS
  - NTSC/PAL, high/normal
  - AE/AWB
  - Defect detection, private zone
- **Video function module**
  - Motion detection up to 1920×1080 with 32×24 blocks
- **H.264 encoder**
  - MPEG4 AVC/JVT/H.264 (ISO/IEC 14496-10) baseline profile
  - up to 120 fps with D1 resolution, up to 15 fps with 1920×1080
  - CBR and VBR rate control
  - Resolution up to 1920×1080 stepped in 16
- **MPEG4 encoder**
  - MPEG4 (ISO/IEC 14496-2) simple profile
  - up to 30 fps with D1 resolution
- **M-JPEG encoder**
  - JPEG (ISO/IEC 10918-1) baseline standard
  - up to 30 fps with D1 resolution
- **PCI bridge interface**
  - Compliant with PCI 3.0 specification
  - 32bit/33MHz, 32bit/66MHz
- **USB2.0 OTG controller**
  - Supports UTMI+ level 3 compliant transceiver
  - PHY included (LS, FS, HS, HUB function)
- **NAND/NOR flash controller**
  - NAND/NOR booting
  - NAND flash capacity: max 2GB × 4ea
- **Static memory controller (Host port interface)**
- **PCI bridge interface**
- **10/100Base-T Ethernet MAC controller (RMII)**
- **DMA controller**
- **MMC/SD card controller (SDIO)**
- **AES/DES/3DES/HASH**
- **Audio DMA**
- **TIMER, WDT, INTC, GPIO, I2C, I2S, UART, PMU**
- **Linux 2.6.14, drivers, streaming player (VLC)**
- **Power consumption**: typical 870 mW (clock gating control)
  - 1.2V (core), 1.8V (DDR2 I/O) and 3.3V (I/O)
- **Package**: (432-TFBGA, 19 mm × 19 mm, 0.8p)

**Block diagram**
Application Diagram: IP Camera (CCD)

- Wireless modem
- Ethernet PHY
- Network Line
- NVR or End-User
- Audio Stream
- Audio Codec
- DDR2
- NOR/NAND Flash
- V-Driver
- AFE
- CMOS image sensor module
- CMOS image sensor
- ITU-R BT.656 or BT.1120
- NVR or End-User
- Network Line

Application Diagram: IP Camera (CMOS Image Sensor)

- Wireless modem
- Ethernet PHY
- Network Line
- NVR or End-User
- Audio Stream
- Audio Codec
- DDR2
- NOR/NAND Flash
- V-Driver
- AFE
- CMOS image sensor module
- CMOS image sensor
- ITU-R BT.656 or BT.1120
- NVR or End-User
- Network Line