



# APOSd™

Audio/Video DSP Codec Solution

APOSd : AddPac Operating System for DSP



## **AddPac**

**AddPac Technology**

2005, Sales and Marketing

[www.addpac.com](http://www.addpac.com)

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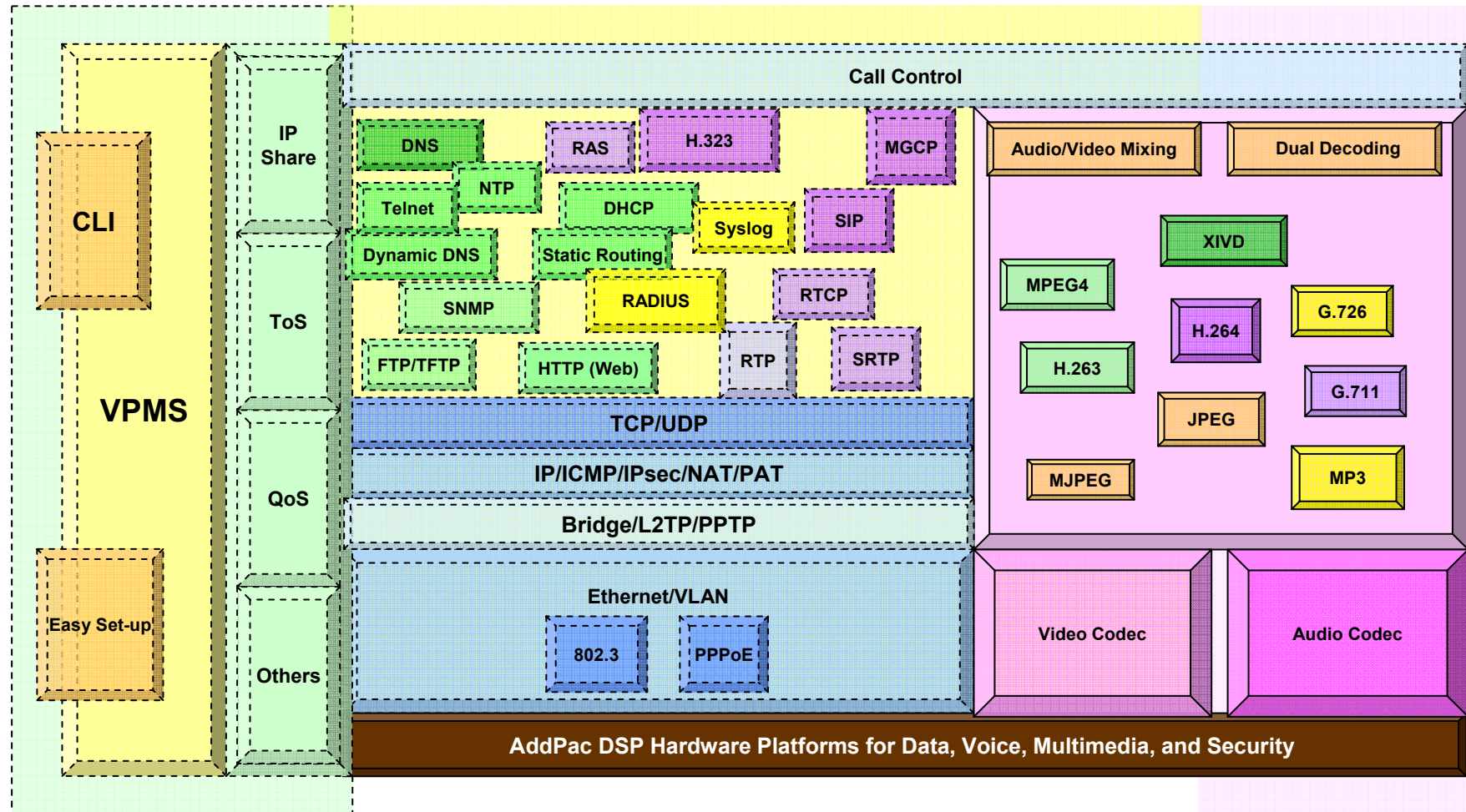
## APOSd Solution

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# APOSd Overview

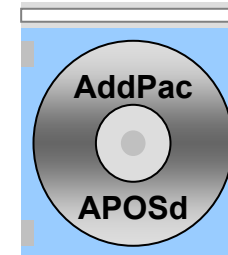
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# APOSd Software Service

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- **Built-in AddPac APOSd Internetworking Software**
  - Scalability, Functionality, and Stability Features
  - Video Traffic QoS Control
- **Programmable Video, Audio, and Voice Services**
  - Video Codes, Audio, and Voice Codec
- **Firmware Upgradeable DSP Architecture**
- **OSD (On-screen Display) Function Support**
- **Industry Standard IP based Network Protocol Features**



# Video Codec Features & Service

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## H.263 Video Codec

- **Baseline H.263**
- **Half Pixel Motion Estimation**
- **Variable Size Support**
  - QCIF(176x144), CIF(352x288), QVGA(320x240)
- **Advanced Rate Control**
  - 32kbps ~ 4Mbps , 1frame ~ 30frame
  - VBR / CBR / Hybrid CBR
- **User Control Interface**
  - Frame rate, Picture size, Target rate, Intra refresh interval
- **Motion Detection**
- **Multi Channel Encoding**
- **Multi Channel Decoding**
- **High-end Error Resilient Against Various Packet Error**

# Video Codec Features & Service

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## MPEG-4 Video Codec

- **Simple Profile MPEG4**
- **AC/DC Prediction**
- **Half Pixel Motion Estimation**
- **Variable Size Support**
  - QCIF(176x144), CIF(352x288), QVGA(320x240), and VGA(640x480), HVGA(640x240)
- **Advanced Rate Control**
  - 32kbps ~ 4Mbps , 1frame ~ 30frame
  - VBR / CBR / Hybrid CBR
- **User Control Interface**
  - Frame rate, Picture size, Target rate, Intra refresh interval
- **Motion Detection**
- **Multi Channel Encoding**
- **Multi Channel Decoding**
- **High-end Error Resilient Against Various Packet Error**

# Video Codec Features & Service

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## H.264 Video Codec

- **Baseline Profile**
- **All 9-Direction Intra-Prediction Modes with 4x4 Block Size**
- **Integer Pel Motion Estimation with 16x16 Block Size**
- **CAVLC (Context-Adaptive Variable Length Coding)**
- **In-Loop Deblock Filter**
- **Variable Size Support**
  - QCIF(176x144), CIF(352x288), QVGA(320x240) : Encoder/Decoder
  - VGA(640x480), HVGA(640x240) : Decoder Only
- **Advanced Rate Control**
  - 32kbps ~ 4Mbps , 1frame ~ 30frame
  - VBR / CBR / Hybrid CBR
- **User Control Interface**
  - Frame rate, Picture size, Target rate, Intra refresh interval
- **High-end Error Resilient Against Various Packet**

# Video Codec Features & Service

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## JPEG/M-JPEG Video Codec

- **Variable Size Support**



# Audio & Voice Service and Features

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## MP3 Audio Codec

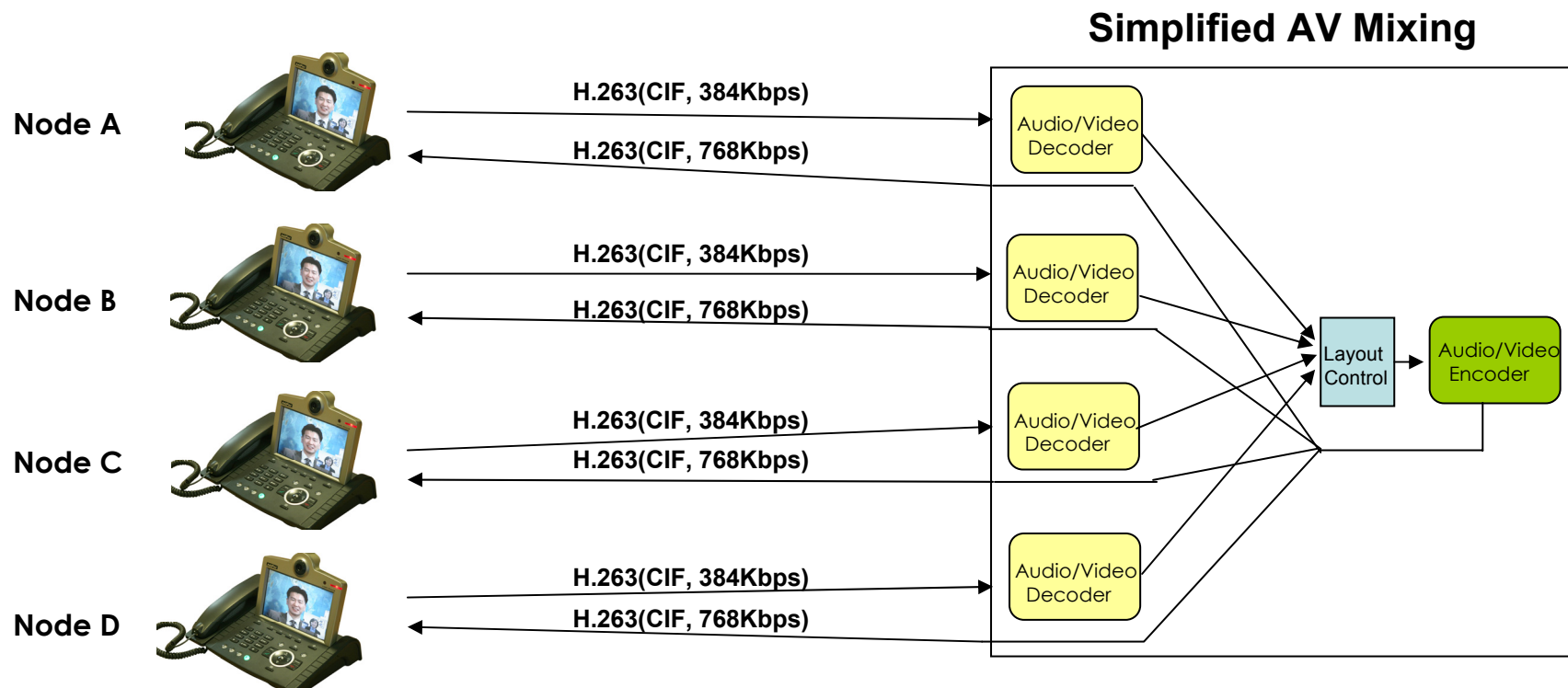
- **MPEG1 / MPEG2 layer-3(LSF) encoding support**
- **MPEG1 / MPEG2 layer-2, 3 decoding support**
- **Bit rates support**
  - 32kbps ~ 192kbps
  - CBR
- **Sampling rates support**
  - 16kHz, 22.05kHz, 24kHz (for MPEG2 Isf)
  - 32kHz, 44.1kHz, 48kHz
- **Joint-stereo, stereo, mono Channel mode**
- **Apply Psycho-acoustic model II**

# AV Mixing Feature for MCU App.

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## Simplified Audio/Video Mixing Model

- **Single Codec : H.263 or MPEG4**
- **Single Rate Control**
- **Asymmetric Rate Control between Encoder & Decoder**
- **Same Conference Layout for All Party**

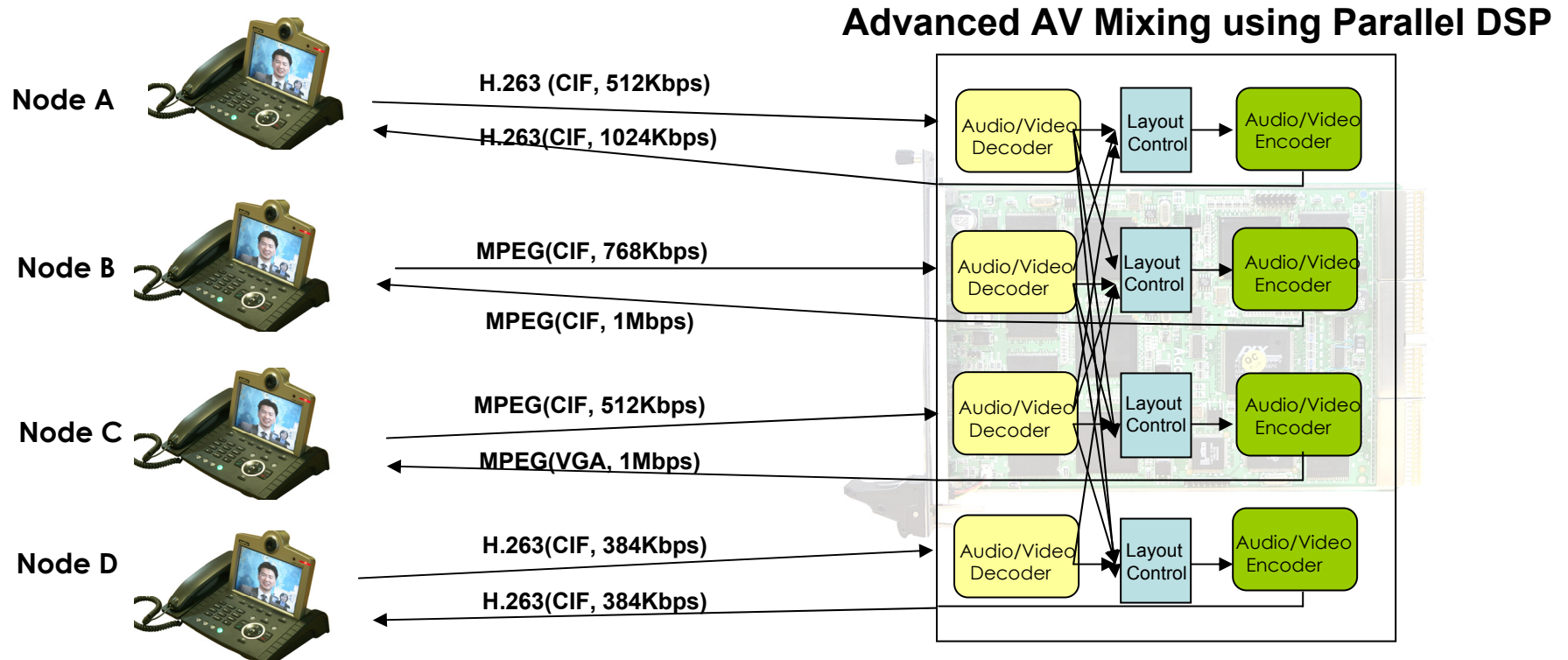


# AV Mixing Feature for MCU App.

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## Advanced Audio/Video Mixing Model

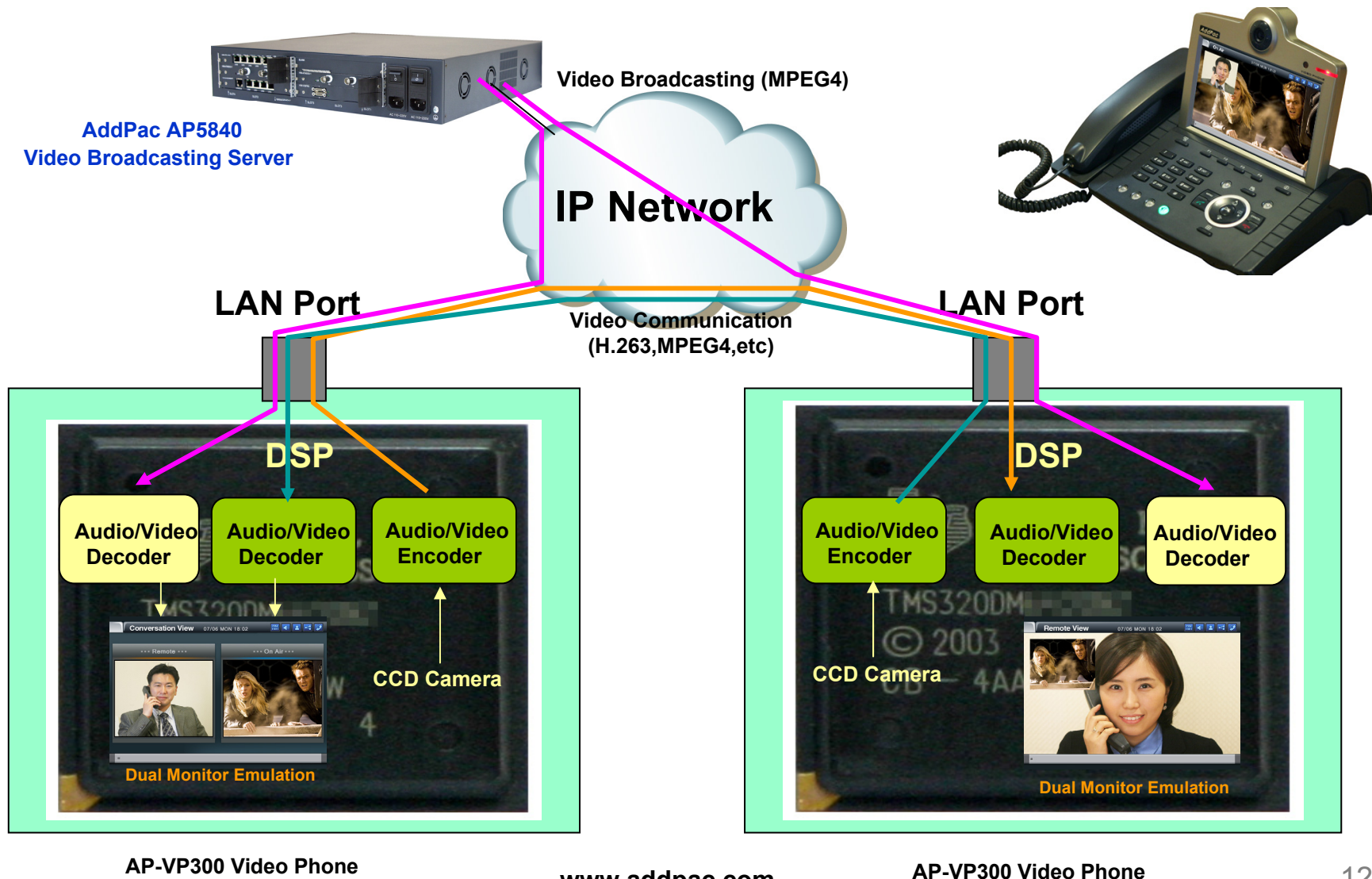
- Multiple Codec : H.263 and MPEG4
- Independent Rate Control
- Asymmetric Rate Control Between Encoder & Decoder
- Independent Conference Layout Control



# Dual Decoder & Single Encoder

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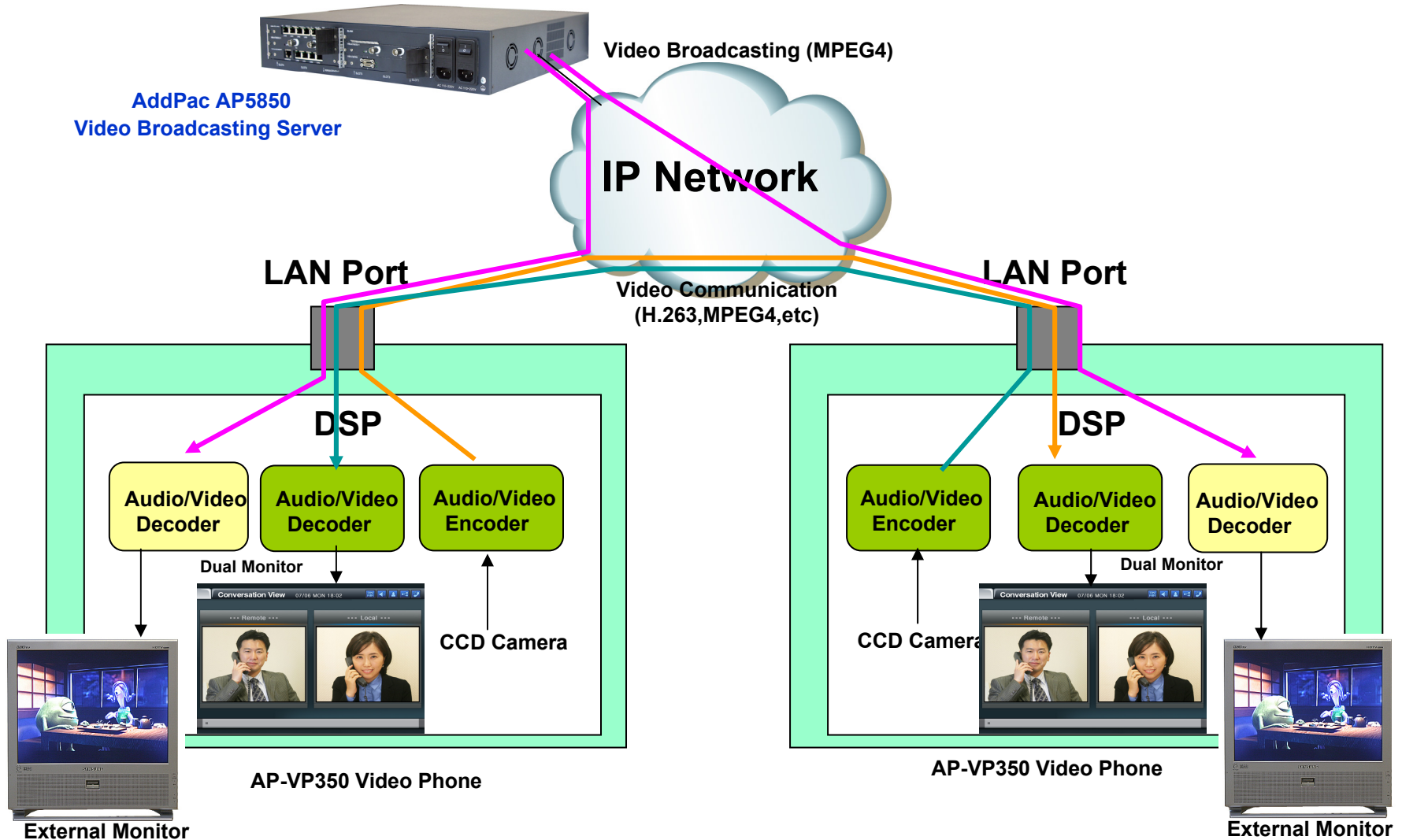
## Dual Monitor Emulation Model



# Dual Monitor Service

## Independent Dual Monitor Service

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# Dual Decoder & Single Encoder

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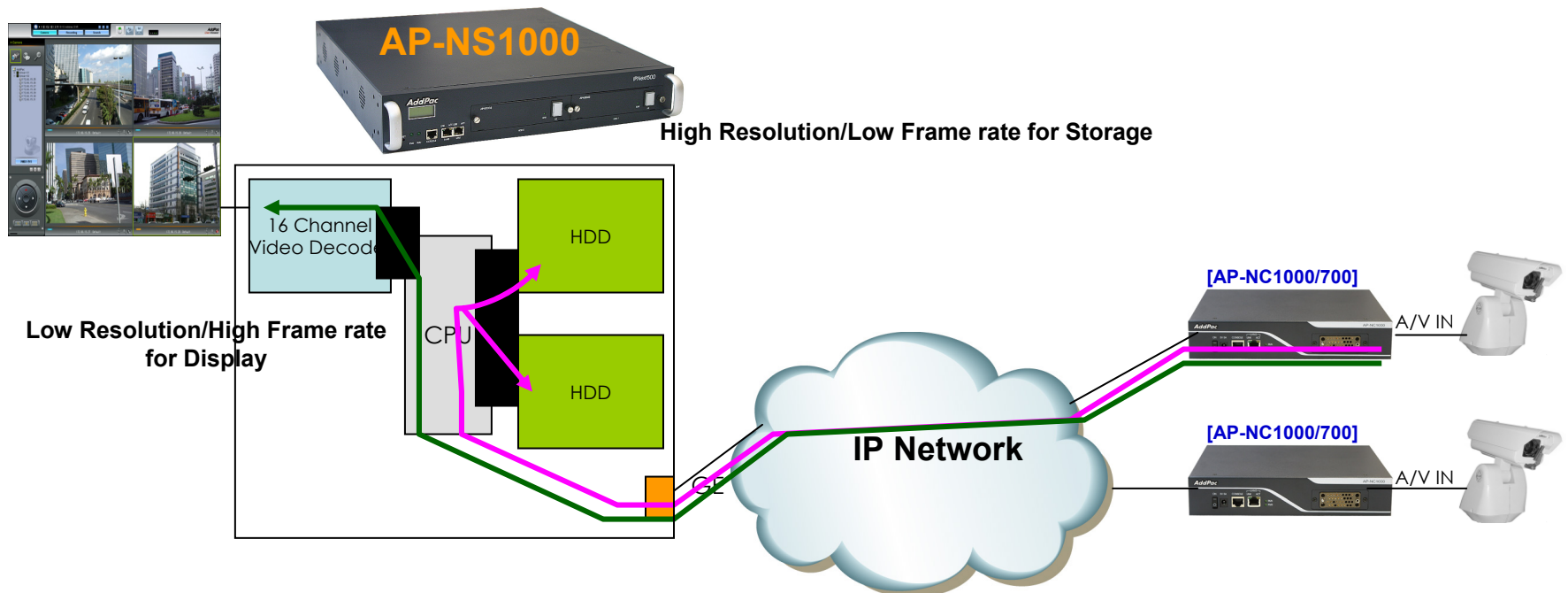
Video Broadcasting + Communication Service Model

- **Video Codec for AV Broadcasting :**
  - MPEG4
- **Audio Codec for AV Broadcasting :**
  - MP3, G.711, G.726, etc
- **Video Codecs for Visual Communication :**
  - H.263, MPEG4, H.264

# Dual Encoding Feature & Service **AddPac**

## Network Camera Service

- **Dual Video Encoding for Network Camera**
  - High Quality, Low Frame Rate for Storage (Ex : VGA, 10Frame)
  - Low Quality, High Frame Rate for Real time Display (Ex: CIF, 30 Frame)
- Video Codec : MPEG4
- Service Architecture



## Basic Network Protocols

- ARP, IP, IPv6, TCP, UDP, ICMP, ICMPv6, SCTP, IGMP, MLD

## Routing Protocol

- IPv4 : Static
- IPv6 : Static

## Service Protocol

- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog
- IP/IPv6 policy control (QoS)
- VPDN (Virtual Private Dial-up Network : L2TP Server)



## **IPv4/IPv6 Interworking**

- NAT/PAT for IPv4
- IP connect (formerly ip-share) and device cascade for IPv4
- IP/IP, IP/GRE tunneling
- NAT-PT
- 6to4, Autoconfig tunneling

## **IPv4 Address Configuration**

- Fixed (Static)
- DHCP
- PPPoE

## **IPv6 Address Configuration**

- Fixed (Static)
- EUI-64
- Autoconfig (Neighbor Advertisement and Solicitation)

# Miscellaneous

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## Miscellaneous

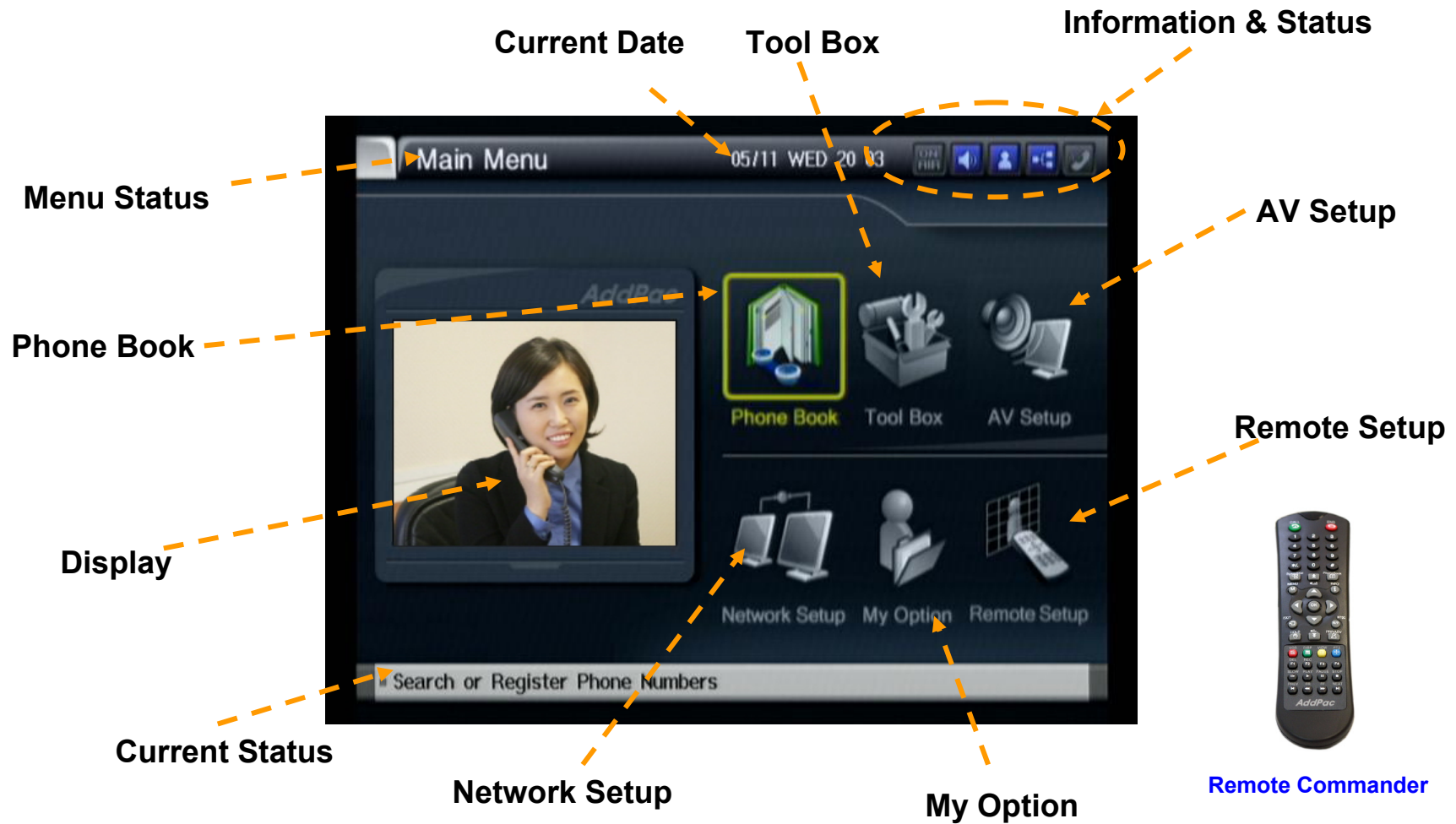
- Cisco Style CLI
- Standard & Extended IPv4/IPv6 Access List
- Multi-level User Account Management
- IP accounting
- fsh (Embedded file system shell)
- STUN Client

## SNMP MIBs

- MIB-II
- RMON MIBs (Statistics, History, Alarm, Hosts Group)
- RFC2465 Management Information Base for IP Version 6: Textual Conventions and General Group
- RFC2466 Management Information Base for IP Version 6: ICMPv6 Group
- RFC2452 IP Version 6 Management Information Base for the Transmission Control Protocol
- RFC2454 IP Version 6 Management Information Base for the User Datagram Protocol
- AddPac Enterprise MIBs
- etc

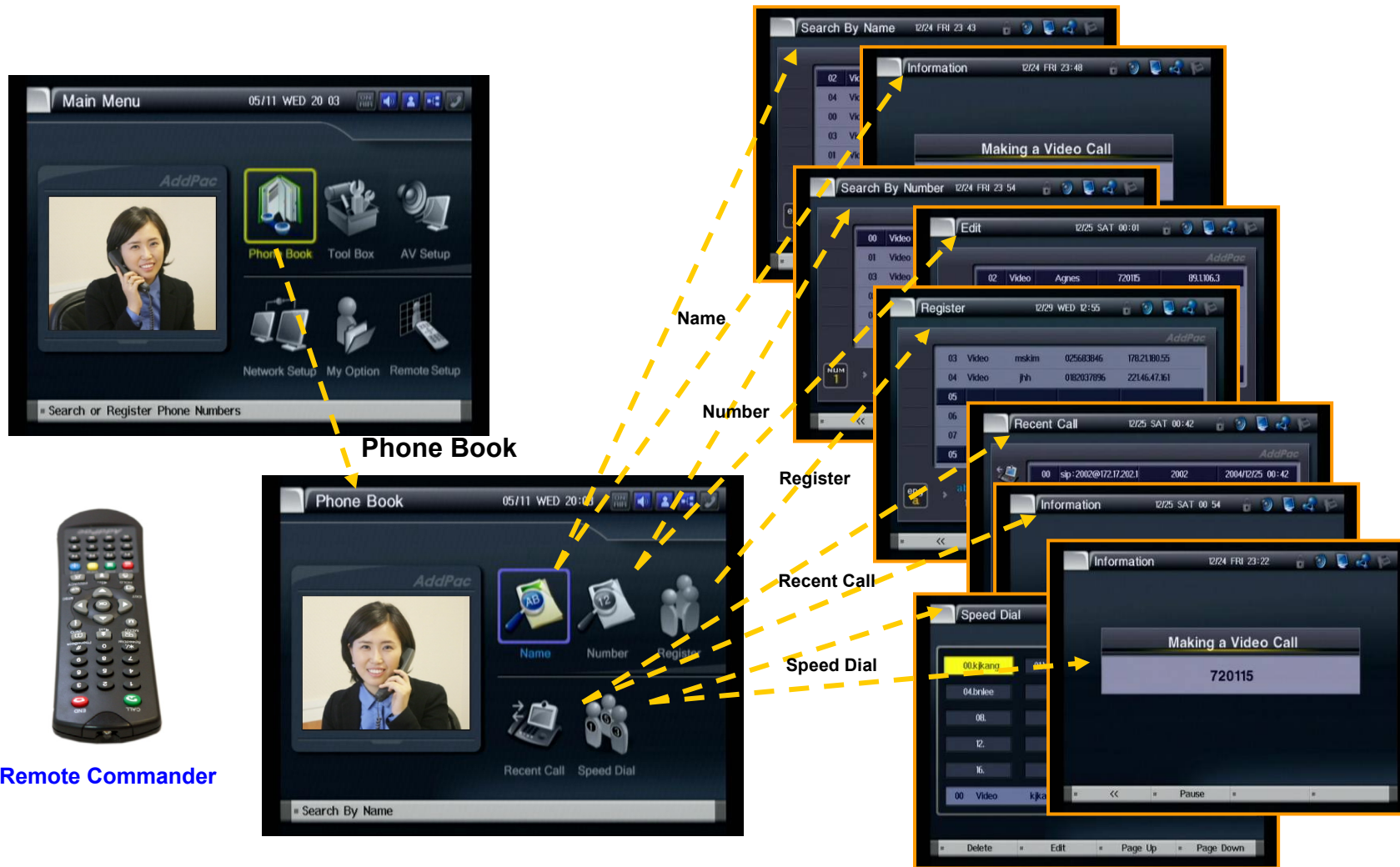
# OSD Software Features

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# OSD Software Features

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**AV Setup**



**Remote Commander**



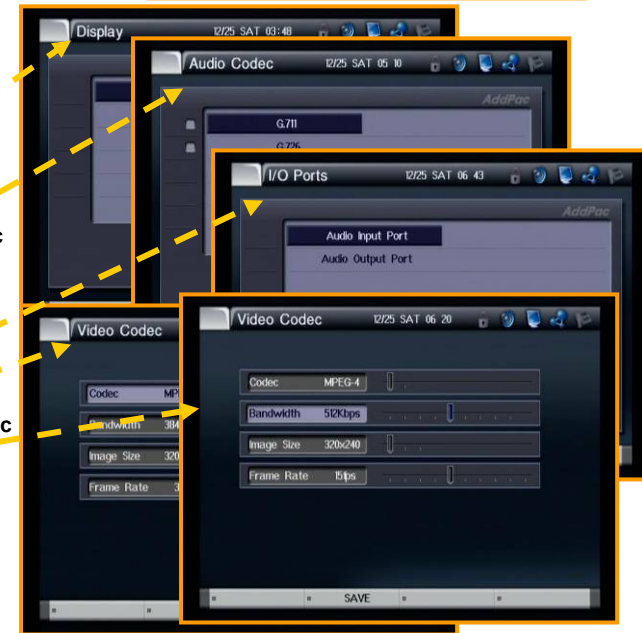
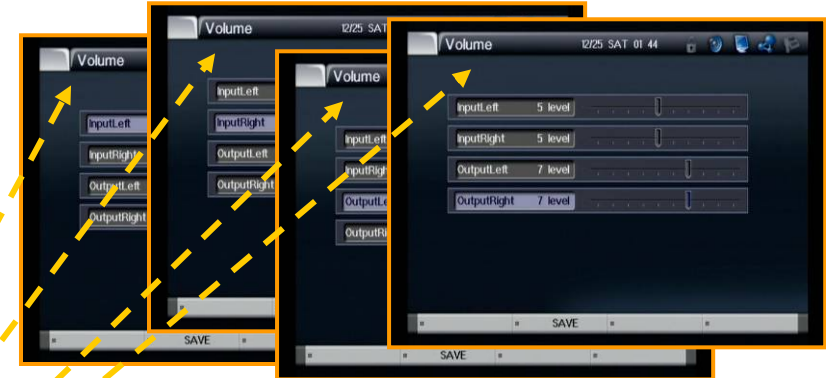
**Volume**

**Display**

**Audio Codec**

**I/O Ports**

**Video Codec**



# OSD Software Features

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# Thank you!

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