



## **IP-STB Introduction**

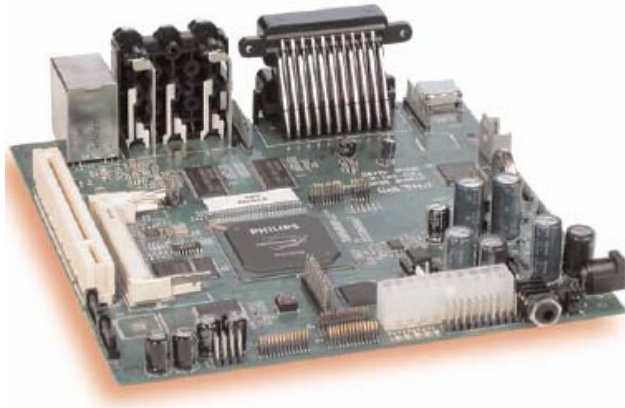
Jerry Kuo



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# **STB810 Solution**

# STB810



- **Triple Play IP STB**
  - MPEG-2 SD/HD, WM9 SD, H264 SD
- **DVB & PVR Support**
  - For hybrid platforms
- **Picture Improvement**
  - For optimal picture quality
  - SD→HD upscaling & Interlaced→Progressive
- **FAST Time To Market**
  - Readily adaptable Reference HW design
  - Ultra fast application porting time (standard Linux APIs) & middleware from 3<sup>rd</sup> party.

# STB810 Key Features

- ▶ PCI and mini PCI interfaces
- ▶ JTAG interface
- ▶ EJTAG interface
- ▶ 2x UARTs
- ▶ Headphone output
- ▶ HDMI output
- ▶ Analogue input source via SAA7117 (RGB, Y/C & CVBS)
- ▶ 2x USB1.1 and 2x USB2.0 or 4x USB2.0
- ▶ Dual SATA interface
- ▶ 2x SCARTs or CINCH (NTSC)
- ▶ HD YPrPb Video output
- ▶ Digital Audio (SPDIF) input & Output
- ▶ Front Panel keyboard
- ▶ RC5/RC6/RCMM receiver

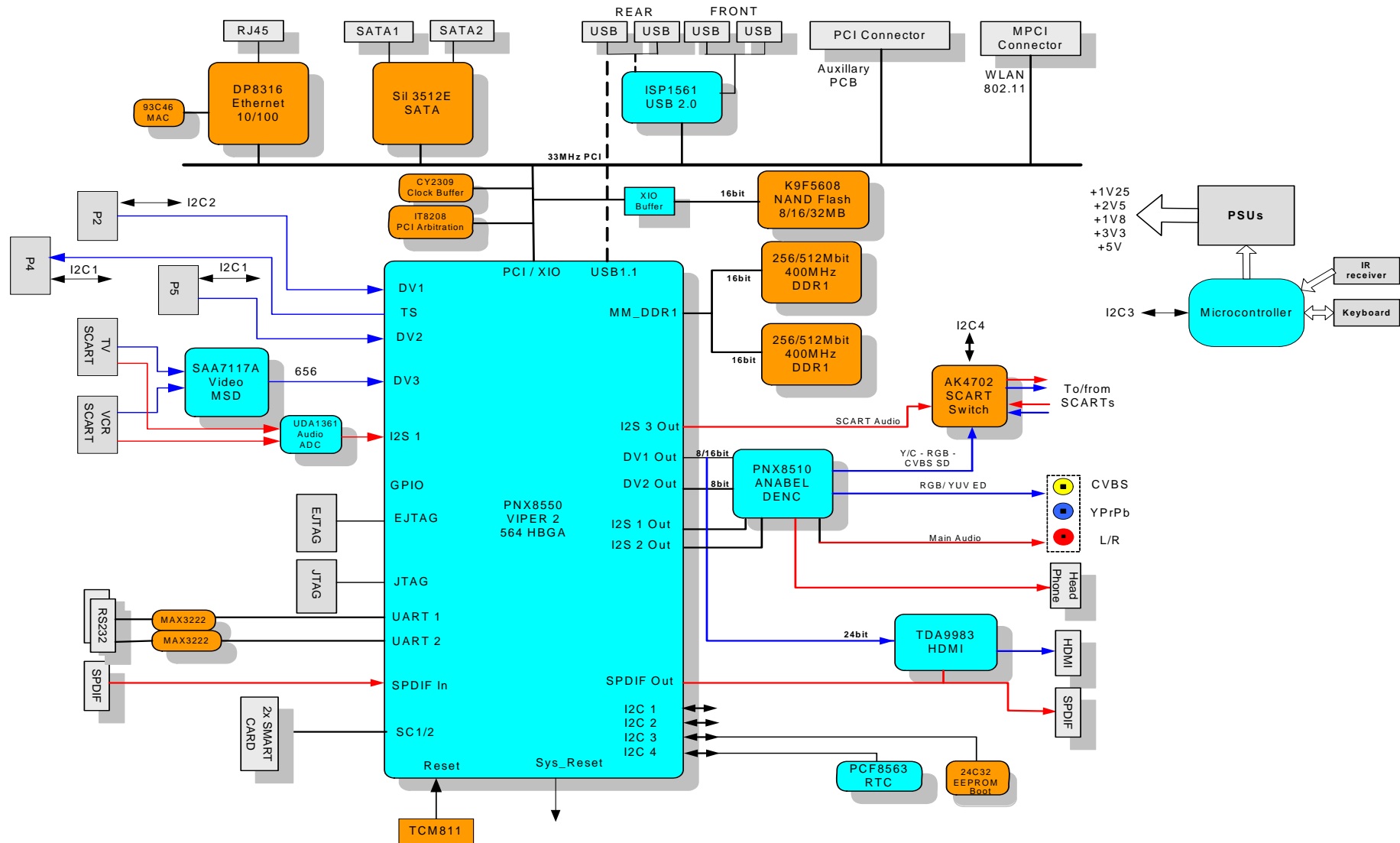


# STB810 Key Features

- ▶ IP video/audio streaming via Ethernet interface
- ▶ Digital broadcast reception
- ▶ PVR
- ▶ Picture improvement
- ▶ MPEG2 HD decoding capability
- ▶ MPEG4/WM9 SD decoding capability
- ▶ H264 SD decoding capability
- ▶ VoIP
- ▶ Conditional Access capability
- ▶ Smart card interface support
- ▶ Wi-Fi capability

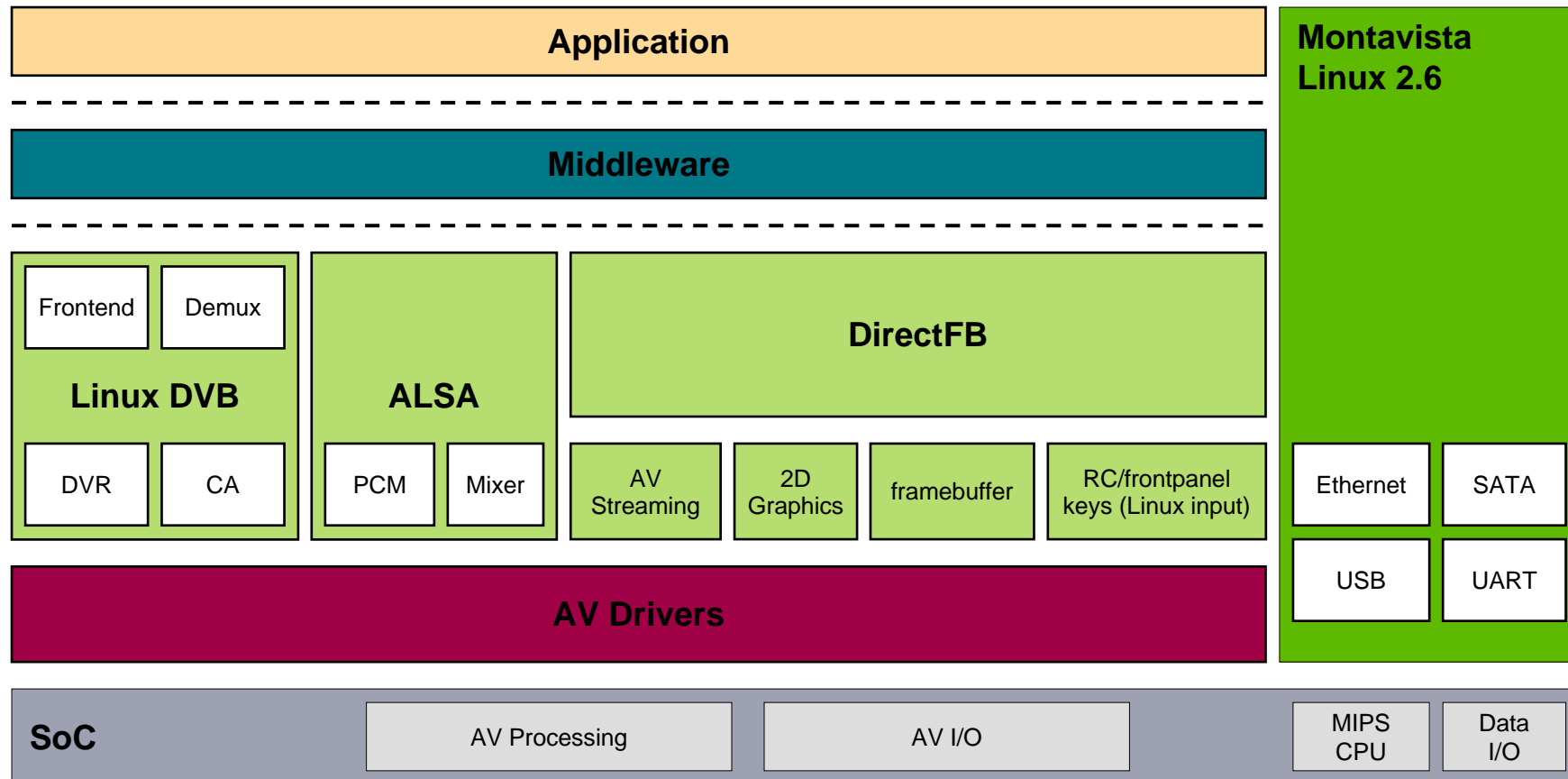


# STB810 Hardware Architecture



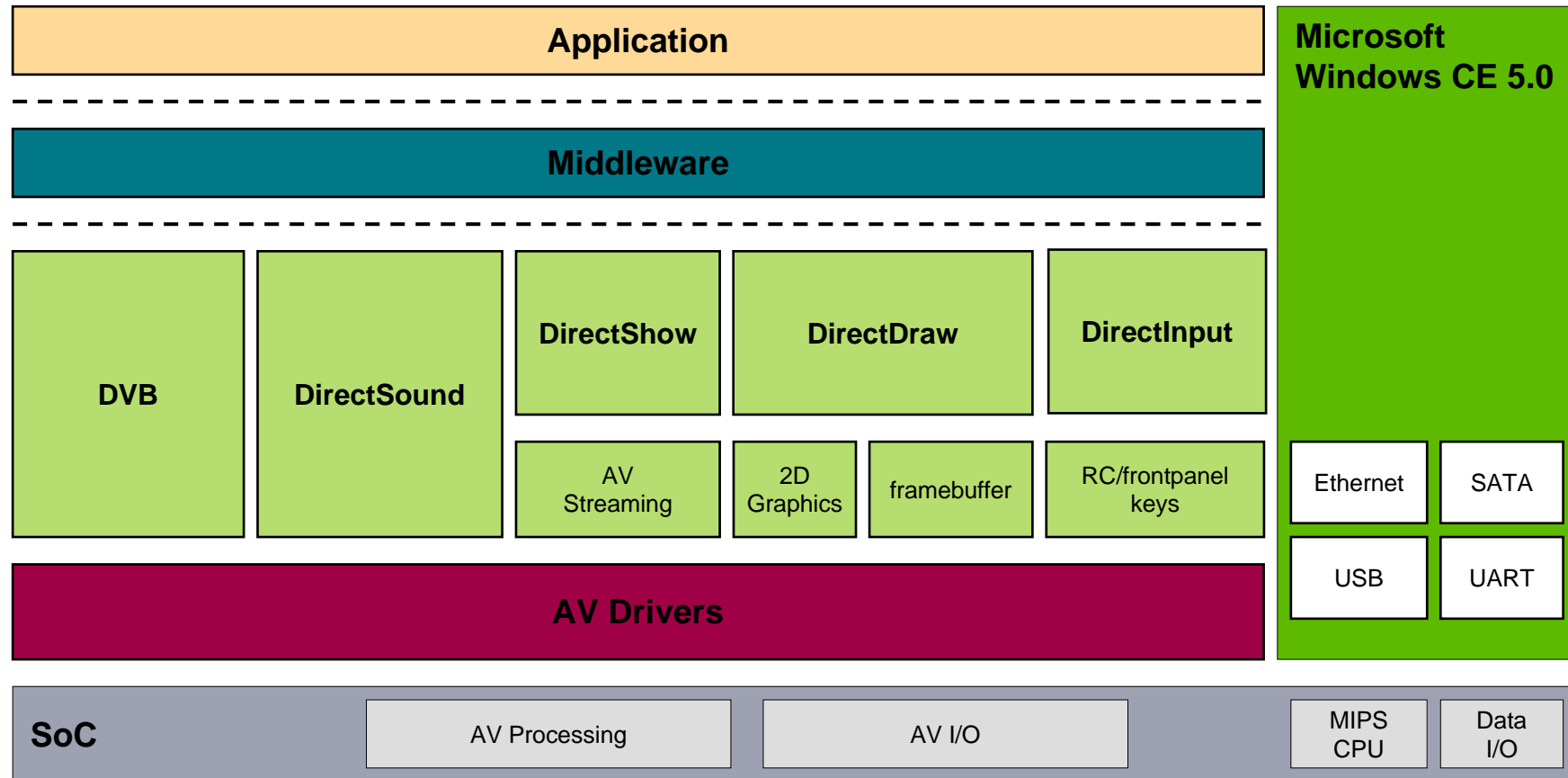
# STB810 Software Architecture

## Software Architecture - Linux



# STB810 Software Architecture

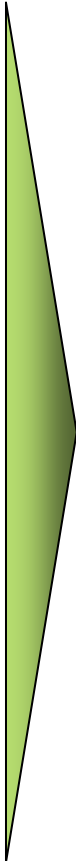
## Software Architecture - WinCE





# STB Reference Designs STB810 & STB225

- Home Media Server
- Multi-Room STB
- V/VOIP+ Dual DVB +PVR+ IP STB
- Dual DVB + PVR+ IP STB
- DMA
- V/VOIP +IP STB
- DVB-C/S/T + IP STB
- VOIP +IP STB
- PVR + IP STB
- Mid-, High-end Pure IP STB
- Low-end Pure IP STB



**STB810 & STB225**

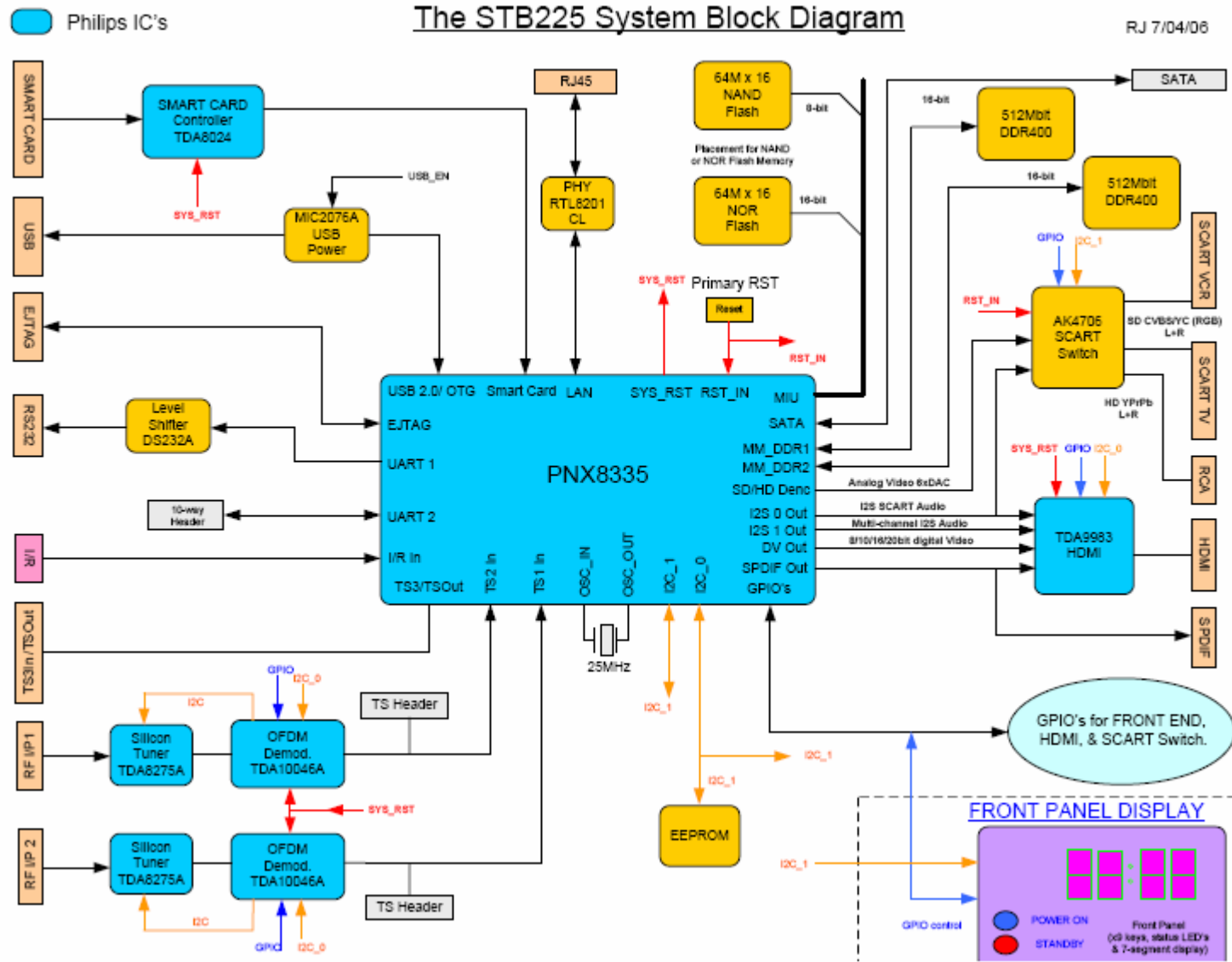
Provides a fundamental building block to enable our customers to innovate where they see best!



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# **STB225 Solution**

# STB225 Block Diagram

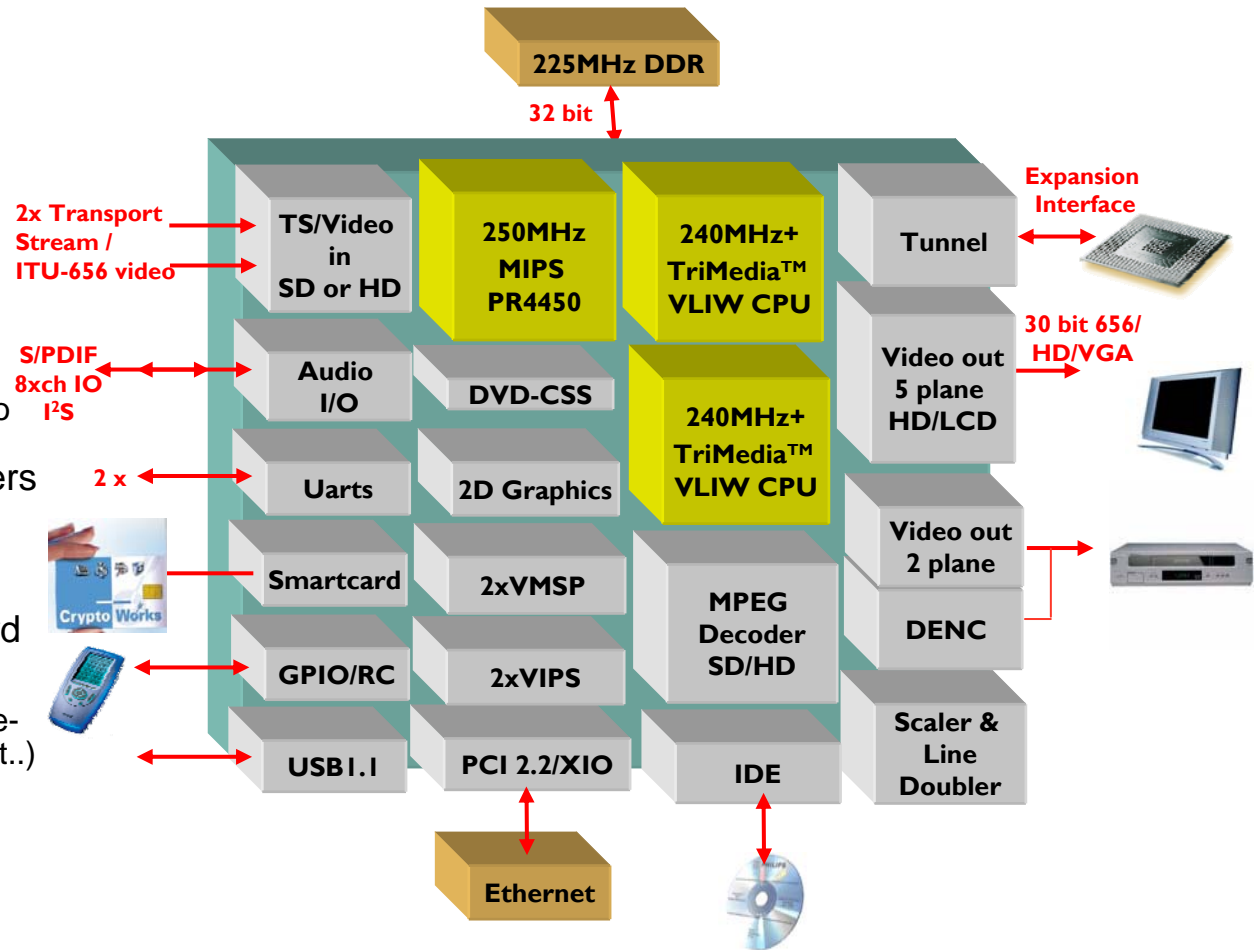


# **PNX8950 introduction**

# PNX8950 – MultiMedia Engine

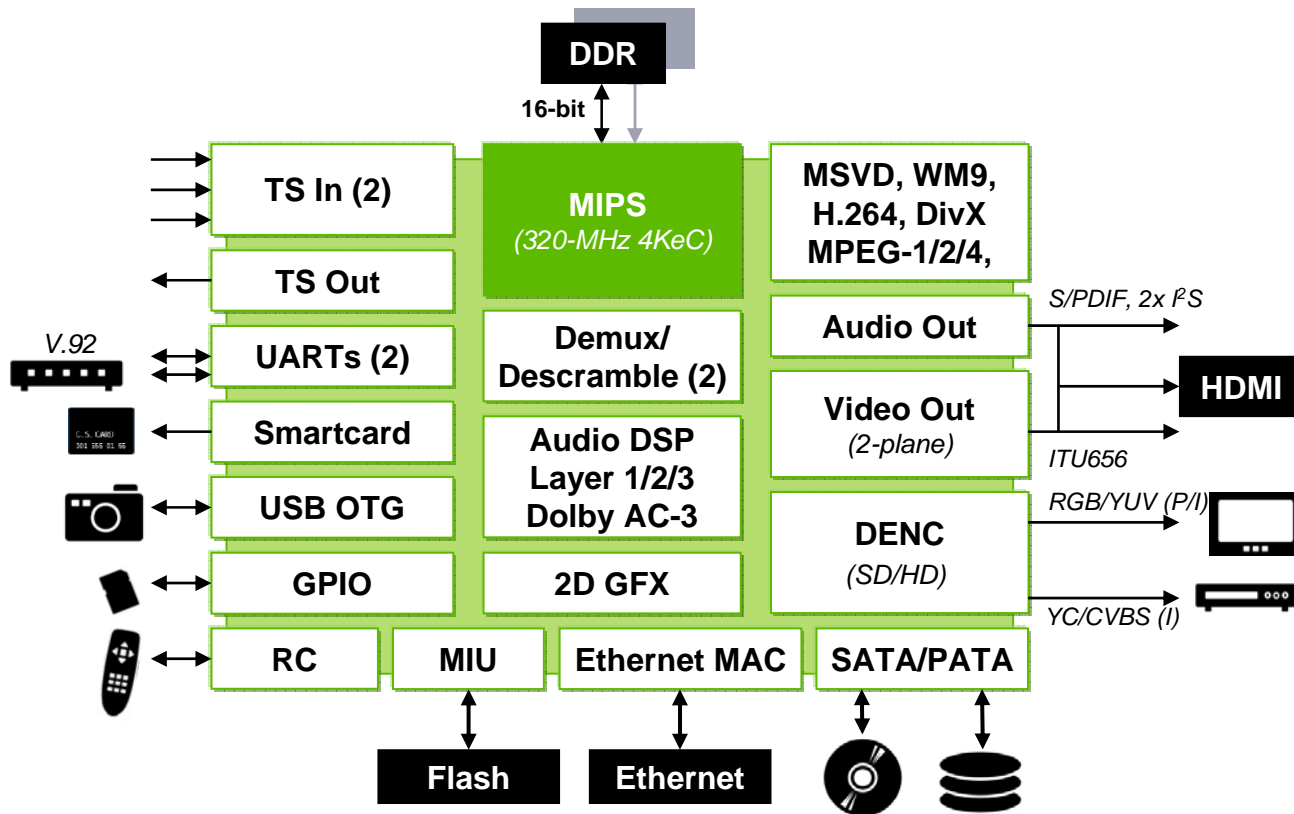
▶ Advanced MultiMedia engine for IP STB, advanced STB, PVR, connected TVs:

- Embedded 250MHz Mips
  - for running Linux, middleware, and applications
- 2 Powerful 240MHz+ DSPs
  - optimised for Audio/Video for advanced codecs
  - 270MHz & 300MHz versions to follow
- 2x TS in + Demux / Descramblers for hybrid STB or PVR
- USB1.1
- Dedicated hardware for standard video functions
  - (MPEG1/2 decode, scaling, de-interlacing, video improvement..)



# **PNX8935 Introduction**

# PNX8935 – MultiMedia Engine





# **PNX89xx Comparison**



# PNX89xx Feature Evolution

		PNX8950	PNX8935	PNX8x40
		Nexperia MPEG-2 HD STB SoC	Nexperia H.264/VC1 HD STB SoC	Nexperia Dual HD STB SoC
<b>MIPS CPU</b>	Speed (MIPS)	250	320	600
	Caches	16 KB + 8 KB	+	32 KB + 16 KB
	External DRAM	DDR1	+	+ DDR2
<b>Media Processing</b>	Simultaneous streams	2* (format dependent)	2	3
	Video decode	dual: SD MPEG-1/2 single: SD MPEG-4, WM9, H264, DivX; HD MPEG-2 (1080i), WM9 (720p)	dual MPEG1/2/4 SD VC-1, H.264, HD 720p 1080i for HD	dual: HD VC-1, H264, MPEG-1/2/4
	Audio decode	dual stereo (2.0 + 2.0) MPEG-1, Dolby AC-3	+	+ multi-channel (7.1), advanced algorithms
	Audio processing	media processor RAM	CPU cache	+
<b>Software</b>		Linux & WinCE	+	+
<b>Security</b>		DVB, DVD-CSS, Multi-2, DES/3DES, AES	+ Secure boot, secret keys, JTAG protection, DSS, H6	+ dedicated security processor (watchdog)
<b>Digital Out</b>	DENC	SD, HD/external HDMI	+ on-chip HDMI TX	+
<b>Graphics</b>		2D accelerator	+	+
<b>Connectivity</b>	Ethernet	external	integrated MAC	+
	USB	USB 1.1	USB 2.0 OTG	+
	Other	PCI	Serial ATA	+ SD, SDIO, MMC, PCIe



**Thank You !!**

**Q&A**

