



- ◇ Transcoding:
  - AVC/ MPEG2 / VC1 to AVC / MPEG2  
⇒ Other common Internet video formats supported
  - HD to HD/SD
- ◇ Encoding:
  - HD/SD AVC/MPEG2/VC1
- ◇ Application CPU
  - 500 MHz , 1250 DMIPS
- ◇ Dual USB 2.0
- ◇ Transport Stream Input for ATSC, DVB, and ISDB-T support
- ◇ Security Engine with Smart Card interfaces for Conditional Access and Content Protection schemes

## FEATURE SUMMARY

### *MPEGPerfection™ Encoding*

- ◇ AVC HD High Profile up to level 4.1
  - ¼ pixel resolution
  - Full Interlace support – MBAFF
  - Entropy Coding – CABAC/CAVLC
- ◇ MPEG2 up to HD (MP@HL)
- ◇ MPEG4 up to D1 (with PSP, iPod, DivX™ remux)
  - ASP (L0 – L5)
  - SP (L0 – L3)
- ◇ 525/60 NTSC, 625/50 PAL
- ◇ VBR or CBR encoding
- ◇ Programmable GOP structure
- ◇ 4:2:2 to 4:2:0 conversion
- ◇ Inverse telecine (3:2 pulldown)
- ◇ Scene change detection

### *Digital Video Filtering*

- ◇ Pixel-based motion-adaptive 3D comb filter
- ◇ Pixel-based temporal/spatial filter
- ◇ Image edge rectification

### *Programmable Audio Processing*

- ◇ MPEG2 LI, LII, MP3
- ◇ MPEG2 AAC-LC-Stereo
- ◇ Dolby AC-3 True HD, 7.1, 5.1, Stereo
- ◇ DTS HD, 5.1
- ◇ WMA
- ◇ AMR
- ◇ aacPLUS
- ◇ PCM
- ◇ Others

### *Smart XCode™ Transcoding/Transrating*

- ◇ Format conversion of multiple streams (SD/HD):
  - AVC >> MPEG2, MPEG4 (ASP, SP), AVC
  - MPEG2 >> AVC, MPEG2, MPEG4 (ASP, SP)
  - VC1 >> AVC, MPEG2, MPEG4 (ASP, SP)
- ◇ Other popular Internet Video Formats supported
  - H.263, DivX, XVID, Real, etc >> AVC, MPEG2, MPEG4 (ASP, SP)
- ◇ Bit-rate reduction of multiple streams:
  - 40 Mbps >> 64 Kbps
- ◇ Resolution reduction of streams:
  - HDTV >> HDTV >> SDTV >> CIF >> QCIF
- ◇ High-speed video processing 2X – 12X real-time

## INTERFACES

- ◇ 2x USB 2.0 Host/Peripheral
- ◇ Integrated NAND Flash Controller
- ◇ Transport stream input(1 serial)
- ◇ Transport stream output (1 serial)
  - i. Re-multiplexor
- ◇ Smart Card interface
- ◇ DDR3 SDRAM memory controller
- ◇ Dual SD Memory, SDIO, MMC Interfaces
- ◇ 2 x UART
- ◇ 2 x I<sup>2</sup>C – master & master/slave
- ◇ 1 x 8/10 bit CCIR 656 input or  
1x YCrCb input SMPTE (274/296)
- ◇ 1 x I<sup>2</sup>S input
- ◇ SPDIF In
- ◇ General Purpose I/O

## SECURITY FEATURES

- ◇ Supports capture and descrambling of ATSC, DVB, and ISDB-T protected standards
- ◇ Supports DVB/DES/3DES/Multi2/3DES descrambling
- ◇ Supports multiple digital right management schemes i.e. MSDRM, RealNetworks, DTCP/IP, CPRM etc. with a powerful encryption/decryption engine

## TECHNOLOGY

- ◇ Efficient Low Power Design
- ◇ 65 nm CMOS design
- ◇ 19 mm x 19 mm BGA package

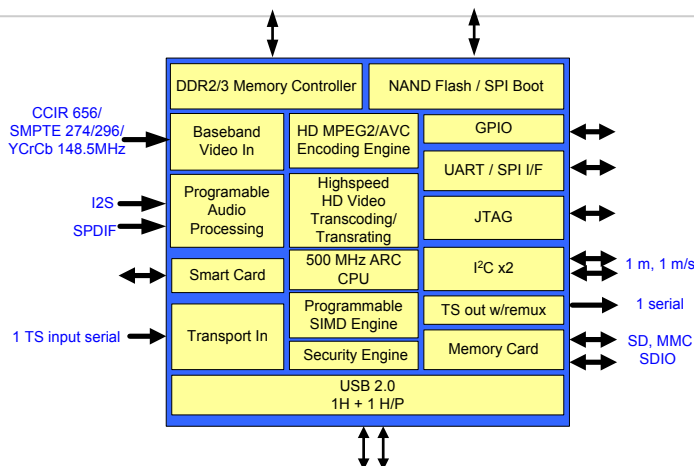
## TYPICAL APPLICATIONS

- ◇ Intelligent Transcoder/Encoder:
  - Personal Video Recorders (PVR's)
  - STB PVR
  - Blu Ray Recorder/Player
  - DTV PVR
  - Residential / Home Gateways

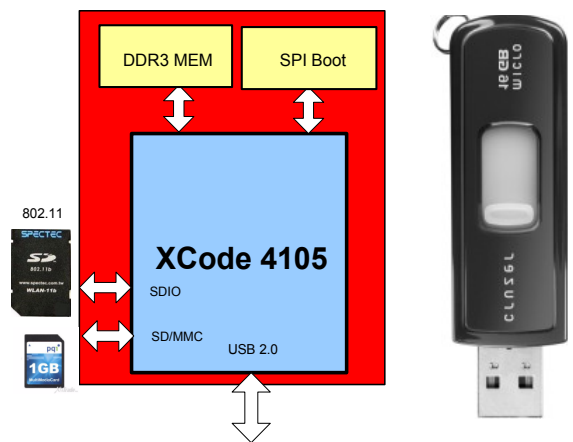
## CORE TECHNOLOGIES

- ◇ Smart XCode™ technology allows users to convert formats, resolution, and frame rates of pre-compressed video, up to 12X faster than real-time, to fit video to many viewing devices
- ◇ MPEGPerfection™ technology defining low-bitrate HD compression without compromising video quality

## XCode<sup>®</sup> 4105 BLOCK DIAGRAM



## INTELLIGENT USB TRANSCODER



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