



- ◇ Transcoding:
 - Dual AVC/ MPEG2 / VC1 to AVC / MPEG2
 - ⇒ Other common Internet video formats supported
 - HD to HD/SD
- ◇ Encoding:
 - SD AVC/MPEG2
- ◇ Application CPU
 - 500 MHz , 1250 DMIPS
- ◇ 10/100/1000 Ethernet, SATA, Dual USB 2.0, PCI Device
- ◇ 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

Mirror Transcoding / Encoding

- ◇ Transcode / Encode from one video source to two different output video formats
 - e.g. MPEG2 HD to AVC HD + AVC SD (Mobile)
 - e.g. Raw YUV HD to AVC HD + AVC SD (Mobile)

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

- ◇ 1x 10/100/1000 Ethernet MAC
- ◇ 2x USB 2.0 Host/Peripheral
- ◇ SATA Controller
- ◇ Integrated NAND Flash Controller
- ◇ Transport stream inputs (up to 2 serial)
- ◇ Transport stream output (2 serial)
 - i. Re-multiplexor
- ◇ Dual Smart Card interface
- ◇ DDR3 SDRAM memory controller
- ◇ PCI v2.3 32-bit 33 MHz bus Device
- ◇ Dual SD Memory, SDIO Interfaces
- ◇ 2 x UART
- ◇ 2 x I²C – master & master/slave
- ◇ 2 x 8/10 bit CCIR 656 input or
1x YCrCb input SMPTE (274/296)
- ◇ 1 x I²S inputs
- ◇ 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
- ◇ 27mm x 27mm BGA package

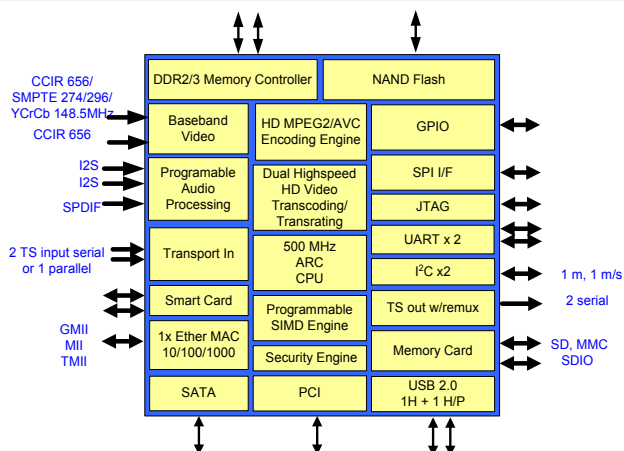
TYPICAL APPLICATIONS

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

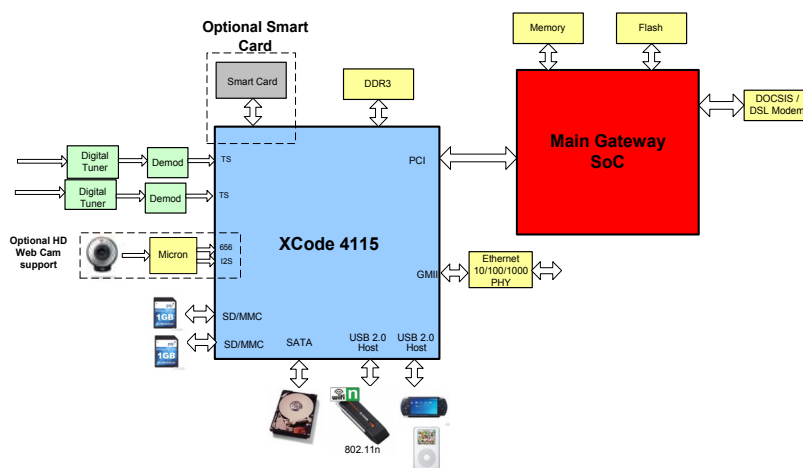
CORE TECHNOLOGIES

- ◇ 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[®] 4115 BLOCK DIAGRAM



INTELLIGENT TRANSCODER



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