xCode® 4125 PRODUCT BRIEF

- **Low Power Multi-Stream HD Encoder / HD to HD Transcoder targeted at a wide range of Broadcast Distribution & Professional Encoder products**
- **Ideal for high performance , high density encoder / transcoder products for cable / satellite / IPTV applications**
- **Flexible algorithms for high quality video at the lowest bit rates**
- **Follow-on to XCode® 3000 series products already designed in by leading broadcast & professional OEMs**
- **Xtensiv™ Broadcast Stack enables faster time to market for OEMs**

FEATURE SUMMARY

High-Performance Video / Audio Processing Solution for Broadcast

Multi-Stream, Multi-Format SD/HD Encoder/Transcoder

- Multi-Stream HD/SD Video Encoding and Transcoding
  - Full Decode / Re-encode Mode Implementation
  - Smart XCode mode Implementation
- Multi-format Video Encode or Transcode (H.264, MPEG2)
- Flexibility to support all HD and SD resolutions
- 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)
- 4:2:2 to 4:2:0 conversion
- Support of wide range of bit rates: 0.5 Mbps to 30Mbps
- Flexibility in rate control implementation: CBR, VBR and capped VBR
- Scene Change Detection, Fade Detection
- Programmable GOP structure
- Dynamic Parameter Changes

Video Pre-Processing

- Pixel-based temporal/spatial filter
- Image edge rectification

Programmable Audio Processing

- MPEG2 LI, LII
- MPEG2 AAC-LC-Stereo
- Dolby AC-3 True HD, 7.1, 5.1,Stereo

Video Inputs

- CCIR 656
- SMPTE 274/296
- YCrCb
- TS
- MII/GMII

Video Output

- MPTS over Serial TS

Closed Captioning Support

- Closed Caption standards; flexible architecture to support proprietary data

Audio / Video Containers

- Multiple Audio / Video containers supported

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Interfaces

- 1x 10/100 Ethernet MAC
- USB2.0 Host Interface
- Integrated NAND FLASH interface
- Transport stream inputs (up to 2 serial/ 1 parallel)
- Transport stream output (2 serial)
  i. Re-multiplexor
- DDR2/3 SDRAM memory controller
- PCI v2.3 32-bit 33 MHz bus Device
- 2 x UART
- 2 x I^2C – master and master/slave
- 2 x 8/10 bit CCIR 656 input or
  1 x YCrCb input (SMPTE 274/296)
  (1080p 60fps capture)
- 2 x I^2S inputs
- SPDIF In
- General Purpose I/O

Application Processor

- Powerful 1200 DMIPS Application Processor to run custom applications

Package

- Efficient Low Power Design
- 27mm x 27mm BGA package

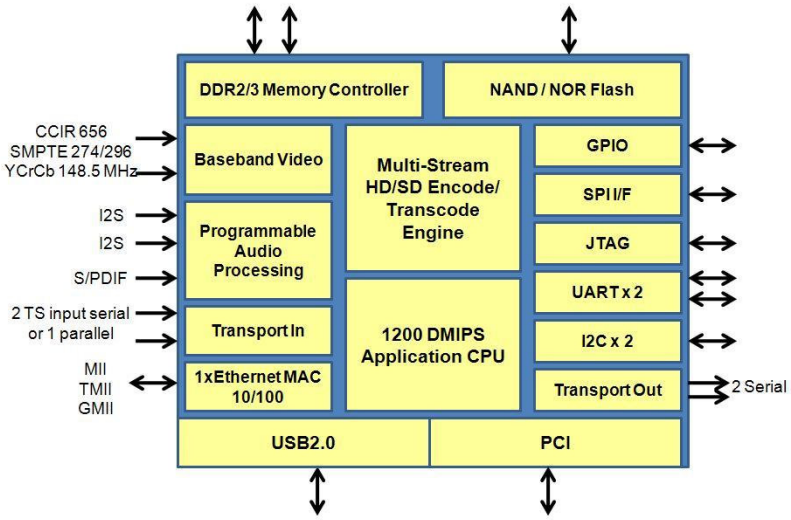
Typical Applications

- Broadcast Transcoder:
  - HD MPEG2 to HD/SD AVC
  - HD AVC to HD/SD MPEG2
- Broadcast Encoder
  - SD/HD MPEG2 Encoding
  - SD/HD MPEG4 Encoding

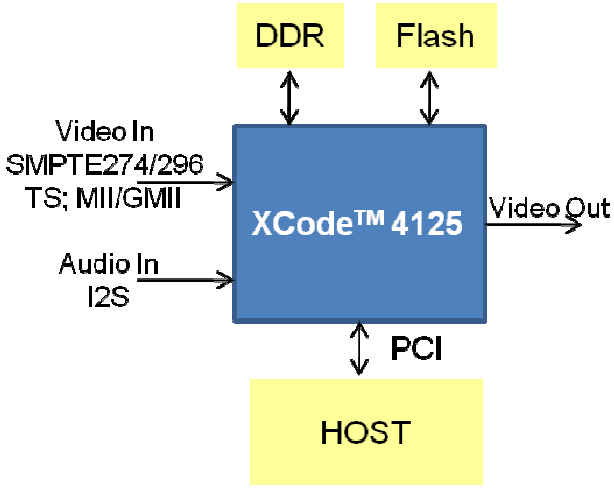
Core Technologies

- MPEGPerfection™ technology redefines low-bitrate compression
- TurboMPEG™ technology allows conversion of formats, resolution, and frame rates of pre-compressed video, up to 12X faster than real-time to fit video to any viewing device

XCode™ 4125 Block Diagram



Broadcast Encoder/Transcoder



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