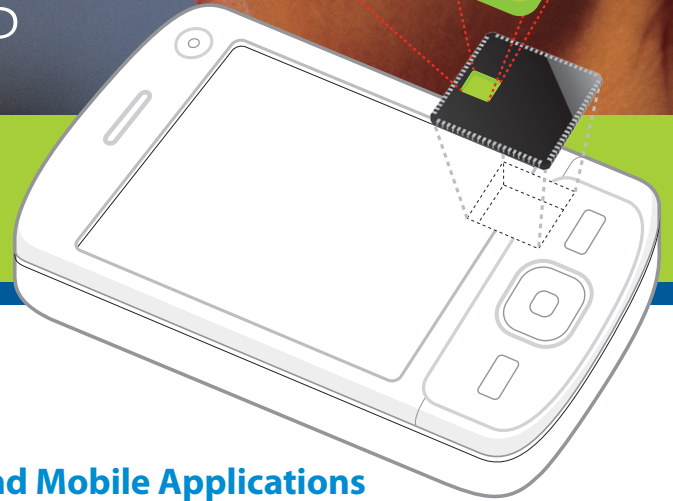




Multi Codec Hardware IP

EXODUS III™



HD Level Multi-Codec IP for Home Entertainment Network Systems and Mobile Applications

EXODUS III™ is a high-performance multi-codec hardware IP (H.264, H.263 and MPEG-4 Codecs and VC-1 decoder), which is optimized for use in Home Entertainment Network Systems. EXODUS III™ also supports rich media, mobile applications such as Personal Media Players. EXODUS III™ uses minimum gate count and delivers high-performance because of its multi-codec architecture.

Up to 30% higher compression ratio and 30% lower memory bandwidth requirement than current market codecs

Standard Compliance

- HD H.264 baseline profile
- H.263 baseline profile
- MPEG-4 simple profile
- VC-1 main profile

Applications

- DVR
- IP Camera
- Digital Camera
- 3.5G, 4G terminal devices
- Video Telephony
- PND, PMP
- Mobile TV application
- Digital Home Entertainment Network

Performance

- Memory Bandwidth
 - H.264 Encoder/Decoder: 4XD1 @ under 180MHz
 - H.264 Encoder/Decoder: 1080 HD @ under 480MHz
 - H.263 Encoder/Decoder: D1 @ under 35MHz
 - MPEG-4 Encoder/Decoder: D1 @ under 38MHz
 - VC-1 Decoder: D1 @ under 45MHz

Key Features

- Real-time encoding and decoding up to 1080 HD resolution
 - 1920×1088 @ 60fps
- High quality encoding with efficient motion estimation and mode decision
- Rate-distortion optimization
- Superior error detection and recovery
- Optimized low power consumption architecture
- Rate control (VBR, CBR)
- Supports interlace and progressive mode

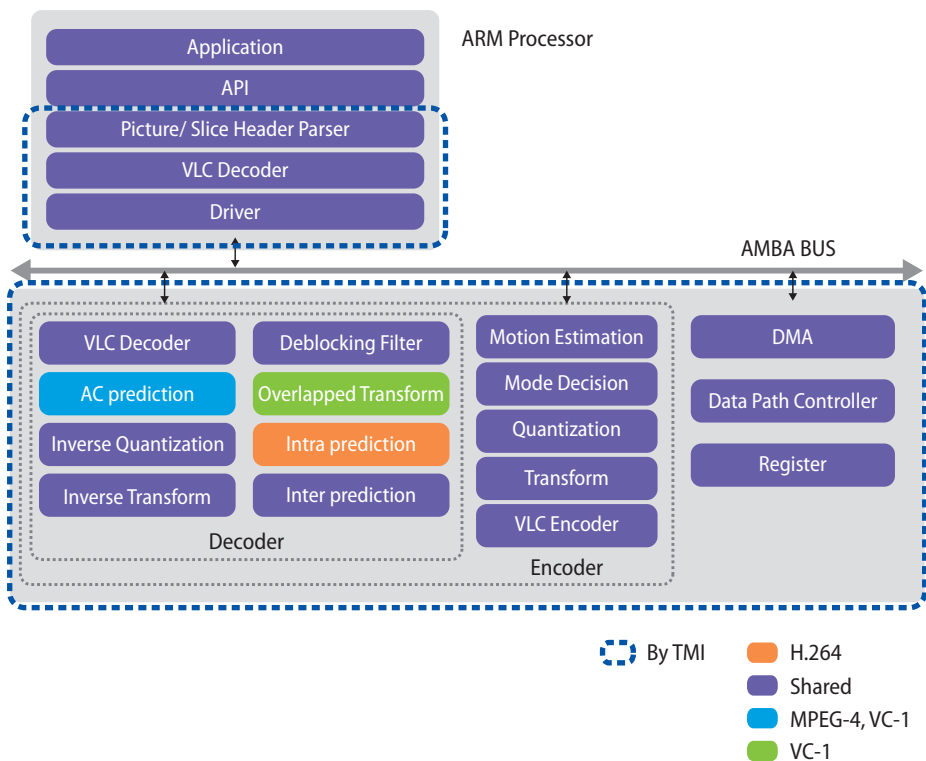
Technical Details

- Supports full H.264, H.263, and MPEG-4, encoder feature sets
 - Window size : $\pm 64, \pm 32$
 - Multiple block size motion estimation (16x16 ~ 4x4)
 - Half-pel (1/2 precision), Sub-pel (1/4 precision) motion estimation
 - 4x4 / 16x16 Intra prediction
 - Multiple block size transformation
 - Advanced prediction mode
 - Unrestricted motion vector
 - Re-sync marker
 - Data Partitioning
 - Reversible variable length code
- Supports full H.264, H.263, MPEG-4, and VC-1 decoder feature sets
 - Multiple block size motion compensation (16x16 ~ 4x4)
 - Half-pel(1/2 precision), Sub-pel(1/4 precision) motion compensation
 - Transform domain intra prediction
 - Spatial domain intra prediction
 - In-loop de-blocking filter
 - 4x4 block transform
 - Bi-linear and bi-cubic interpolation
 - Overlapped transform
- Dedicated DMA
 - Support 1D/2D Access
 - Various burst mode
 - Event driven transfer
- Full sharing of resources
 - Dedicated DMA
 - Pipeline buffer and line buffer
 - Pipeline control
 - Register file of multi codec
 - Shared blocks of encoder and decoder

Specifications

EXODUS III	Codec	Profile and Level	Resolution	Frame rate
	H.264 codec	Baseline profile@Level4	Up to 1080 HD	Up to 60 fps
	MPEG-4 codec	Simple profile @Level 3	Up to D1	Up to 30 fps
	H.263 codec	Baseline profile@Level40		
	VC-1 decoder	VC-1 main profile@Medium Level		

Functional Block Diagram



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