

Multi Codec Hardware IP – ‘GENESIS III™’

AVS, H.264 and VC-1 Decoder for MobileTV



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GENESIS III™ is high-performance multi-codec hardware IP - AVS, H.264 and VC-1 decoder - which is optimized for use in mobileTV devices. GENESIS III™ delivers unprecedented AVS, H.264 and VC-1 decoding performance, and integrates advanced multimedia feature such as a digital multimedia broadcasting interface, CMMB and DVB-H terminals. GENESIS III™ also supports standard stream on interlace mode.

Standard Compliance

- AVS BP baseline profile
- H.264 baseline profile
- VC-1 main profile

Performance

- Internal memory size: under 13Kbyte
- Memory bandwidth:
 - ✓ AVS Decoder: D1 @ under 65MHz
 - ✓ H.264 Decoder: D1 @ under 65MHz
 - ✓ VC-1 Decoder: D1 @ under 60MHz

Key Features

- Real-time encoding or decoding up to D1 resolution
 - ✓ 720x480 @ 30fps
- Superior error detection and recovery
- Optimized low power consumption architecture

Applications

- MobileTV applications
 - ✓ CMMB (STiMi)
 - ✓ DVB-H (IPDC and Modeo)
 - ✓ T-DMB / S-DMB
 - ✓ ISDB-T (1-Seg)
 - ✓ DVB-H OMA BCAST

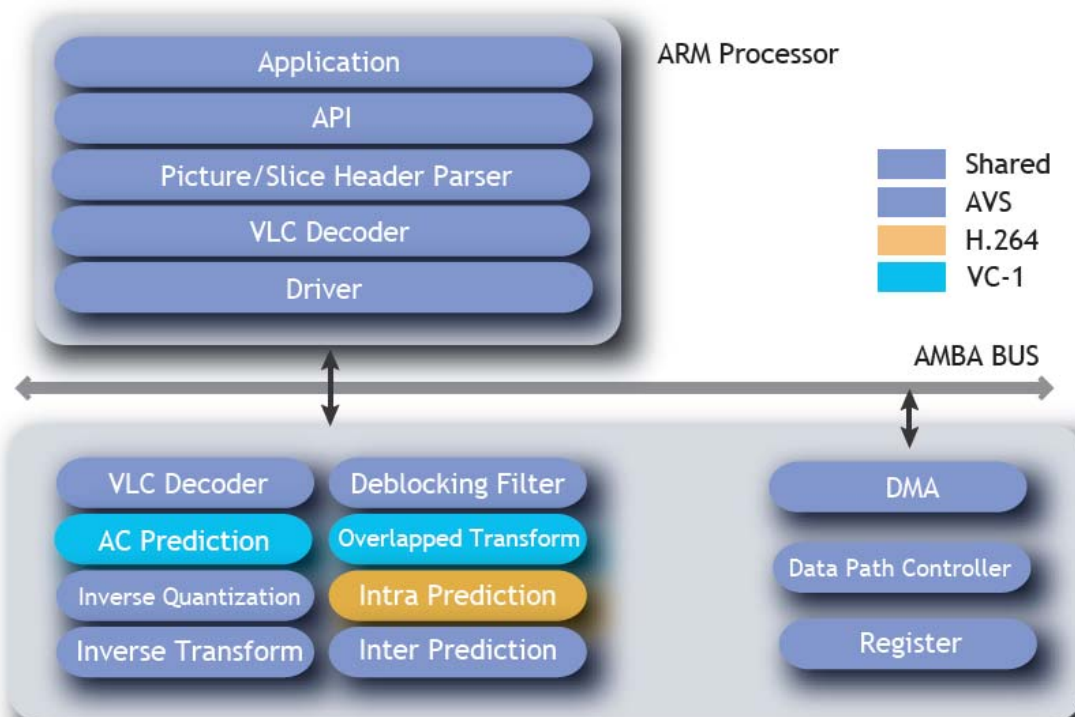
Technical Details

- Supports full H.264, VC-1 (WMV9) and AVS 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
 - ✓ Multiple block size transform
 - ✓ B-frame
 - ✓ Bi-linear and bi-cubic interpolation
 - ✓ Overlapped transform
 - ✓ Interlace mode (H.264 and AVS)
- Dedicated DMA
 - ✓ Supports 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 decoder blocks

Specifications

	Codec	Profile and Level	Resolution	Frame rate	Availability
GENESIS III (Decoder)	H.264 Decoder	Baseline profile @Level 3	Up to D1 (720x480)	Up to 30 fps	2008
	VC-1 Decoder	VC-1 Main profile @Medium level			
	AVS Decoder	AVS Baseline profile @ Level 3			

Functional Block Diagram



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