

Multi Codec Hardware IP - 'GENESIS III'<sup>TM</sup>,  
AVS, H.264 and VC-1(WMV9) Decoder for MobileTV



# Multi Codec Hardware IP - 'GENESIS III™,

## AVS, H.264 and VC-1 (WMV9) Decoder for MobileTV

GENESIS III™ is high-performance multi-codec hardware IP - AVS, H.264 and VC-1 (WMV9) decoder - which is optimized for use in mobileTV devices. GENESIS III™ delivers unprecedented AVS, H.264 and VC-1 (WMV9) 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 (WMV9) 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
  - ✓ 720x576 @ 30fps
  - ✓ 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

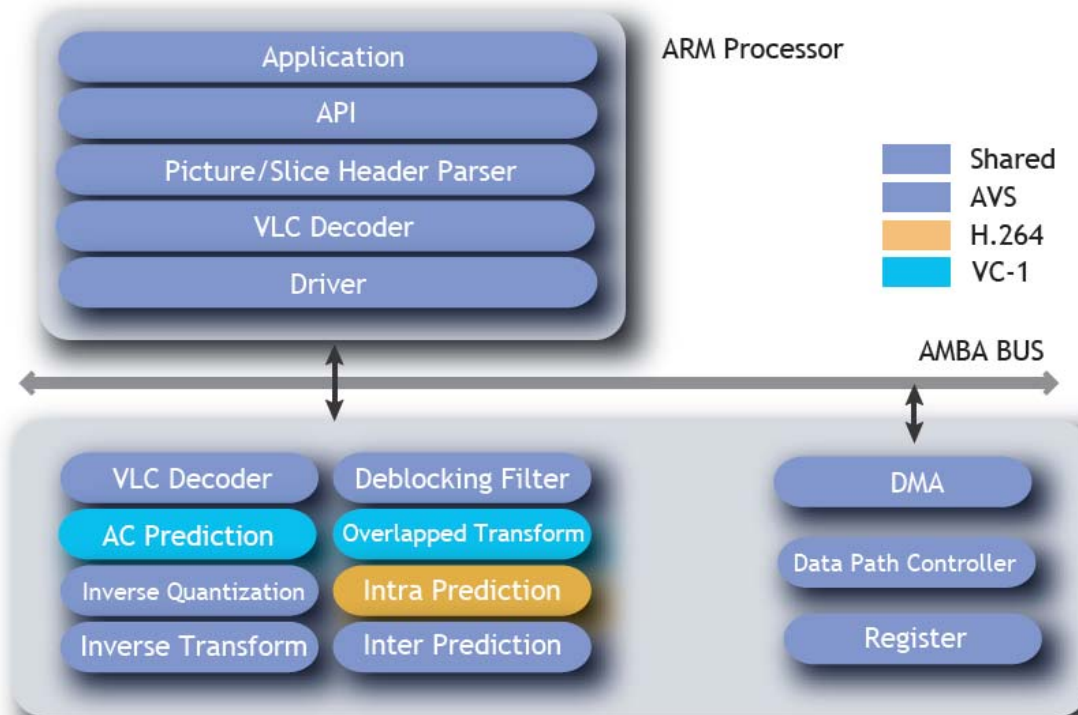
### Technical Details

- 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

GENESIS III (Decoder)	Codec	Profile and Level	Resolution	Frame rate	Availability
	H.264 Decoder	Baseline profile @Level 3	Up to D1 (720x480)	Up to 30 fps	Q1 2008
	VC-1 Decoder	VC-1 Main profile @Medium level			
	AVS Decoder	AVS Baseline profile @ Level 3			

## Functional Block Diagram



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