

Ittiam H.264 Baseline Profile Encoder Data sheet

Description

The baseline profile of ITU-T H.264 is extensively used for achieving good video quality at low bit-rates and reasonable computational complexity. It is used in applications such as video telephony, surveillance, and video streaming. This data sheet contains the features supported and the performance numbers for Ittiam H.264 baseline profile encoder on TI's DM648 @ 720MHz platform.

Features

- Compliant with Baseline Profile – Level 1, 1.x, 2, 2.x, 3.
- Quarter pixel accurate motion estimation.
- Packetizes bit-stream data into buffers to ease transmission on IP networks.
- Supports YUV420, YUV422p and YUV422i raw video input formats.
- Non-low-delay Constant Bit Rate (CBR) control algorithm.
- Supports run time changes to target bit-rate
- Supports run time changes to source and target frame-rates.
- Supports encode of IDR pictures on request.
- Configurable search range to optimize the tradeoffs between the usage of the internal memory, encoder complexity and performance.
- Supports horizontal scaling by a factor of 2.

Encoder Validation

The H.264 BP encoder implementation has been verified by decoding the streams produced by it with the JM reference decoder. The quality of the encoder has been verified by comparing against JM reference encoder running with similar tool sets.

Resource requirements on TI DM648

The table below indicates the amount of code that resides in internal (L1P, L2) and external DDR2 memory

L1P (KB)	L2 (KB)	DDR2 (KB)
-	48	150

The table below indicates the amount of data that resides in internal (L1D, L2) and external DDR2 memory for a D1 resolution sequence

L1D (KB)	L2 (KB)	DDR2 (KB)
-	64	4000

The table below indicates the memory configuration at which the encoder was profiled

Memory	Cache (KB)	Memory (KB)
L1P	32	-
L1D	32	-
L2	128	384

CPU Loading

The table below indicates the DSP loading for different sequence resolutions

Content				MCPS
Content	Dimension	R (kbps)	fps	Avg
Shields	720 x 480	2500	30	388
RushHour	640 x 480	2000	30	350
Bus	352 x 288	512	30	121

Table 0-1 Processor Loading in Terms of Average and Peak MCPS

Note:

- CPU loading is measured in Millions of cycles per second (MCPS) on the DSP
- Memory numbers are in kilobytes (kB); 1 kilobyte = 1024 bytes
- Input and output buffers not included in memory usage
- MCPS numbers will vary with the I-Cache and D-Cache size and with the memory placements of code and data in external memory
- Scratch memory includes 9Kb of ACPY data

Notice

Ittiam Systems reserves the right to make changes to its products or discontinue any of its products or offerings without notice. Ittiam warrants the performance of its products to the specifications applicable at the time of sale in accordance with Ittiam's standard warranty.



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