

MPEG-2 Video Encoder

Description

The CXD1922Q is a highly-integrated device including MPEG-2 encoder, motion estimation, and system and rate controller on a single chip. The device is ideal for low-cost solutions in consumer products, storage media, communications and authoring applications.

The CXD1922Q supports MPEG-2 MP@ML encoding compliant with ISO/IEC 13818-2 for frame structure encoding.

Features

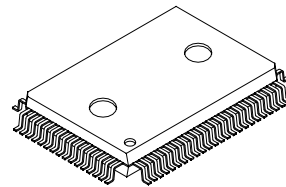
MPEG-2 Encoding

- High quality, real-time encoding (I, B, P)
- Supports MP@ML, SP@ML
 - Image size: up to NTSC 720x480 @ 30fps
up to PAL 720x576 @ 25fps
 - Up to 2 "B-frame" ($M \leq 3$)
 - Frame structure
- Encoding rates:
 - Max. bit-rates: 15Mbps (P, B)
25Mbps (I only)
- MPEG-2 Video Elementary Stream Output
 - 4:2:0 chroma format encoding

Motion Estimation

- Adaptive motion estimation algorithms
- Wide motion vector search range:
 - Horizontal: -288 to +287.5
 - Vertical: -96 to +95.5
- Frame/field motion estimation
- Half-pel accuracy
- Dual-prime encoding support

208-Pin QFP (Plastic)



Encoding Controller (Closed)

- Programmable rate and system control
- Host independent operation
- CBR and VBR encoding support
- Constant length coding for storage media
- Adaptive frame/field MC/DCT coding
- Programmable parameters including:
 - Bit rate
 - GOP structure (M&N value)
 - Encoding image size
 - Quantization matrix tables, etc.

Interfaces

- Host: 16-bit controller
- Input video: 4:2:2 YUV CCIR 656 (8-bit parallel)
- Output video: 8-bit video elementary stream (8-bit parallel)
- External memory: 32Mbits
 - Supports SDRAM (e.g. 512K x 16 x 2-chips)

Other:

- Supports MPEG-1 encoding
- Multi-level temporal noise reduction
- Image conversion for free size encoding
- 4:2:2 to 4:2:0 video conversion
- Automatic scene change detection
- Automatic 3:2 pull-down inversion
- Error concealment I-frame motion vectors
- Support for user data insertion in encoded stream

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Block Diagram

