

## 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

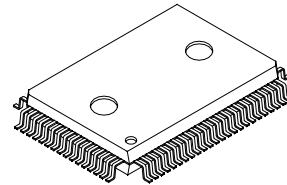
#### MPEG-2 Encoding

- 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

