

H.264/AVC Video Compression

Encoders, Decoders and Subsystems

Each accelerated hardware encoder and decoder in this family satisfies particular needs for performance, power consumption, and silicon area, and offers smart trade offs of compression degree and quality.

Included are:

- **H.264/AVC Video Encoders and Decoders**, supporting different profiles and featuring the lowest power consumption and smallest silicon area compared to competitive cores,
- a hardware RTP stack for **H.264 Stream Decapsulation** and pre-integrated **Video Over IP Subsystems**, and

- **DMA engines, interface bridges**, and other companion cores for easier system integration

CAST is one of the longest-running providers of image and video compression IP cores, with hundreds of successful customers shipping millions of media products, beginning in 1998. Royalty-free licensing is available for all these cores.

Compare the cores below, follow the [links](#) to individual product pages for full details, and [contact Sales](#) to learn more or discuss how we can support your evaluation.

| H.264 ENCODER CORES | H264-E-BIS Intra-Only Baseline Profile | H264-E-BPS Low-Power Baseline Profile | H264-E-CFS Ultra-Low-Power Baseline Profile | H264-E-HIS Intra-Only High Profile | H264-E-BPF Ultra-Fast Baseline Profile |
|---------------------------|--|---|---|--|--|
| Throughput (cycles/pixel) | 4 | 4 | 4 | 2.5 | 2 or 1.33 |
| Performance (16nm ASIC) | UHD/4k@30 | UHD/4k@30 | UHD/4k@30 | 1080p@60 | UHD/4k@60 |
| Silicon Resources * | Very Small | Small | Small | Moderate | Moderate-High |
| Profile | Constrained Baseline | Constrained Baseline | Constrained Baseline | High 10 Intra | Constrained Baseline |
| Slices Types | IDR | IDR, P | IDR, P | IDR | IDR, P |
| Chroma Formats | 4:2:0 | 4:2:0 | 4:2:0 | 4:2:0 | 4:2:0 |
| Bits per Sample | 8 | 8 | 8 | 8, 10 | 8 |
| Progressive/Interlaced | ✓/✓ | ✓/✓ | ✓/× | ✓/× | ✓/✓ |
| Multiple Video Channels | Optional | Optional | Optional | × | Optional |
| CAVLC / CABAC | ✓/× | ✓/× | ✓/× | ✓/× | ✓/× |
| CBR and VBR | ✓ | ✓ | ✓ | × | ✓ |
| Intra-Refresh | N/A | ✓ | ✓ | N/A | ✓ |
| Multiple Slices | ✓ | ✓ | ✓ | × | ✓ |
| Compressed Frame Store | × | × | ✓ | N/A | N/A |

* Very Small <100k Gates, Small < 200k Gates, Moderate < 500K Gates, and High > 500KGates

| DECODER CORES | H264-D-BP H.264 Low-Latency Baseline Profile Decoder | H264-LD-BP H.264 Low-Power Baseline Profile Decoder |
|---------------------------|--|---|
| Standard | AVC/H.264 | AVC/H.264 |
| Profile | Constrained Baseline | Constrained Baseline |
| Profile Compatibility | Full | Limited to streams from the H264-E-BPS/BPF, BIS cores |
| Additional Features | × | Interlaced with Main Profile Syntax |
| Throughput (cycles/pixel) | 2.5 | 4 |
| Silicon Resources | Moderate | Small |

* Very Small <100k Gates, Moderate < 500K Gates and High > 500KGates