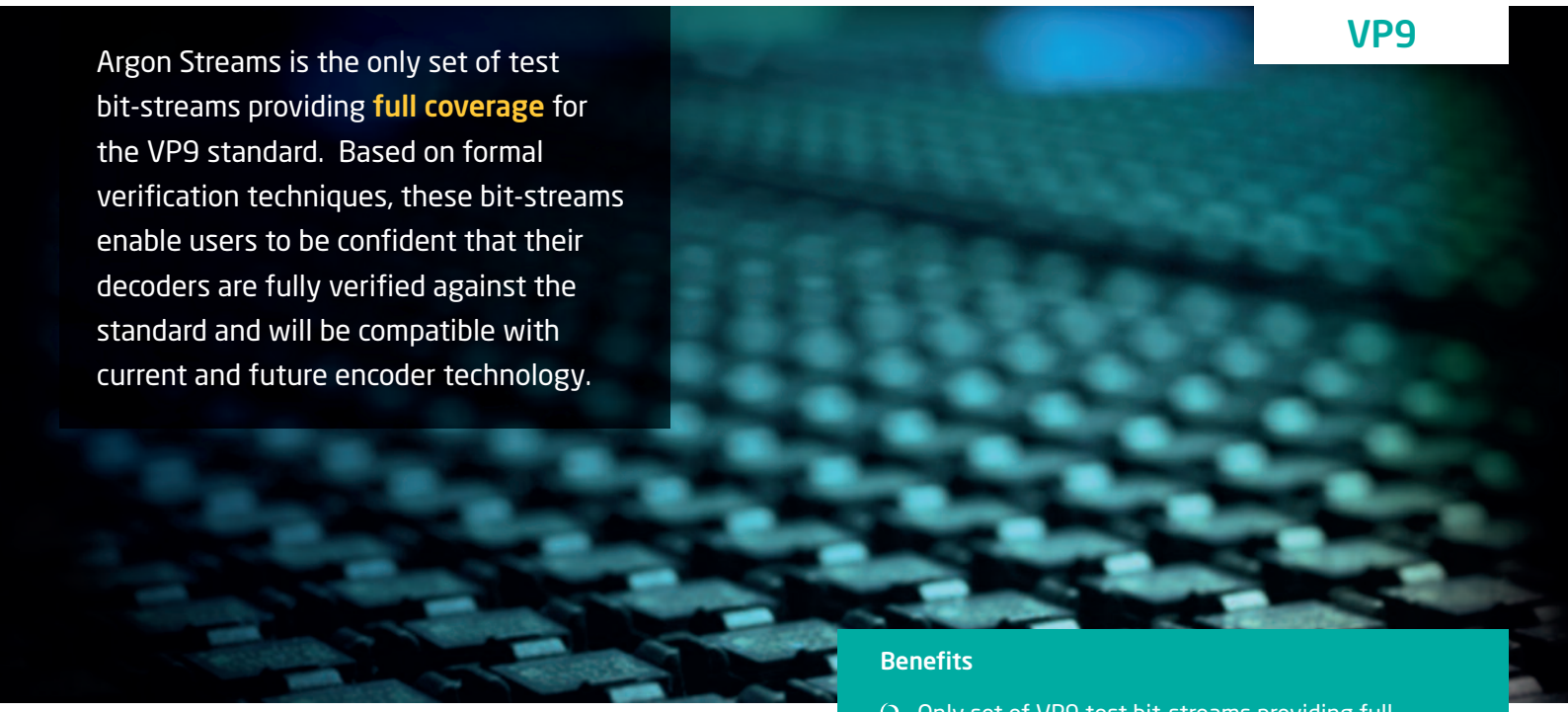
ARGON STREAMS

VP9

Argon Streams is the only set of test bit-streams providing **full coverage** for the VP9 standard. Based on formal verification techniques, these bit-streams enable users to be confident that their decoders are fully verified against the standard and will be compatible with current and future encoder technology.



Why do you need Argon Streams?

VP9 offers higher levels of video compression than previous video codecs to allow Ultra HD video streaming over limited channel bandwidths. However, with this advantage comes more complexity and risk for IP and semiconductor designers.

Argon Streams is a set of test bit-streams for the Google VP9 video codec standard based on formal verification techniques. Users can be confident that their decoders are fully verified against the standard and fully compatible with current and future VP9 bit-streams encoder technology.

Are you ready for VP9?

VP9 is an open and royalty free video compression standard developed by Google. Supporting higher resolution video coupled with lower bandwidth requirements, it has already been selected by YouTube and is regarded as the technology of the future for internet streaming of Ultra HD videos.

However, VP9 is a more complex video codec and video decoders will need a rigorous verification process to ensure compatibility.

Argon Streams uses a formal verification technique and is the only product which provides designers with full test coverage of their decoder.

Benefits

- Only set of VP9 test bit-streams providing full coverage
- Formal verification against the VP9 reference code
- Find all the errors in your decoder design with our comprehensive testing suite
- Reduce simulation time without sacrificing test coverage
- Reduce risk for your video decoder chip design
- Go to production with complete confidence that your decoder is correct
- Full interactive coverage reporting
- Shorter simulation times than other test bit-streams
- Used by leading tier 1 IP and semiconductor companies

Supported features

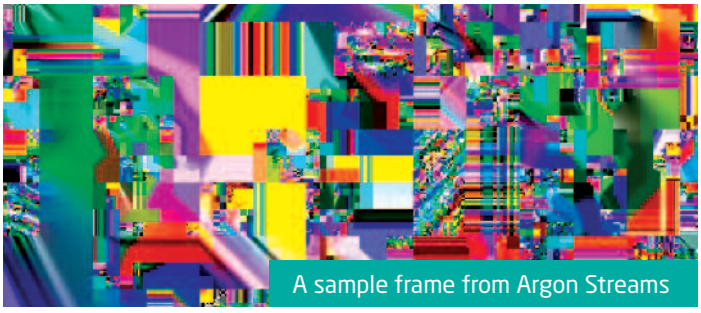
- Keyframes
- Inter frames
- Intra-only Inter frames
- Hidden frames
- Frame refresh
- Scaling
- DCT, ADST, WHT
- Loopfilter
- Segmentation map
- Column and Row Tiles
- Forward probability update
- Backward probability update
- Error resilient mode
- Parallel decoding mode
- High precision motion vectors

How does it work?

Based on Google's reference code for VP9, Argon Design has written a mathematically accurate pseudo-code specification of VP9 and a compiler that understands this pseudo-code and includes a model of the VP9 coding process. The compiler uses the pseudo-code equations to produce a bit-stream generator and a Coverage Tool.

When seeded by directed random numbers with a controlled probability distribution, the bit-stream generator is able to produce bit-streams that explore the whole space of valid VP9 bit-streams.

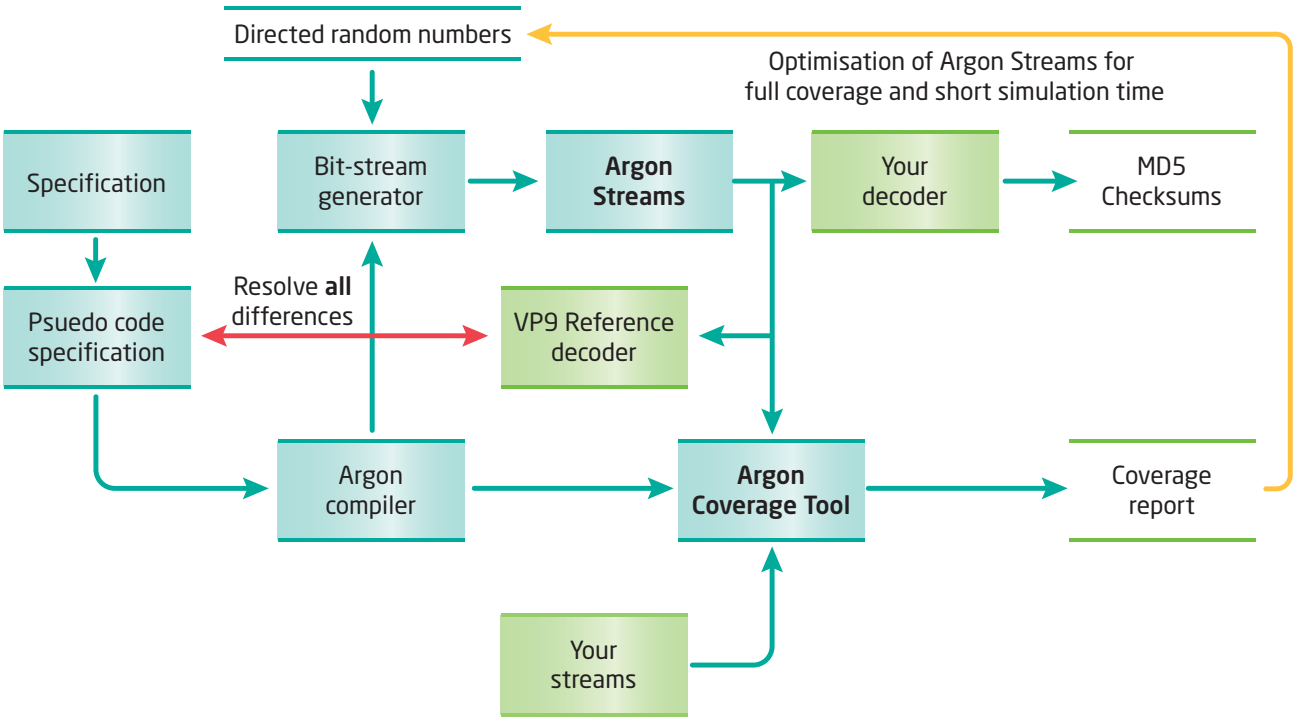
The Coverage Tool is then used to select and tune the bit-streams in to a concise set that provide full coverage with the minimum number of bit-streams. It then verifies the bit-streams against Google's reference code. This closed loop system ensures that there are no missed test cases or any incompatibilities between the reference code, the pseudo-code specification and the bit-streams.



A sample frame from Argon Streams

About Argon Design

Argon Design is a high tech consultancy with a successful track record specialising in complex IP and ASIC designs including custom processors, video codecs and 2D/3D graphics engines. Used to working to high standards of formal verification and with proven test coverage, we have adopted the same approach for testing video decoders, providing major competitive advantage for our customers.



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Contact us to find out how Argon Streams can benefit you:

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