

Solution Brief

High-Performance Video Encoding
Visual Computing

intel®

Blackmagic Design DaVinci Resolve Unleashes Intel® Deep Link Hyper Encode

Slow encoding has been an ongoing struggle for creatives as video resolution rises to higher levels. In response, Blackmagic, using Intel graphics technology, unleashed the power of Deep Link Hyper Encode in DaVinci Resolve Studio 18.

“We are excited to now optimize DaVinci Resolve for the latest Intel Arc graphics and next-generation Quick Sync Video technology, to be able to leverage its hardware-accelerated AV1 encoding capabilities. With our strong partnership and Intel’s unwavering support for the Creator community, we are looking forward to be able to fully optimize our software for the Intel CPUs and GPUs and enhance the user experience for our customers.”¹

- Rohit Gupta, Director,
DaVinci Software Engineering

Blackmagicdesign



DaVinci Resolve 18 is a comprehensive software solution that excels at many functions, including non-linear video editing, color grading, visual effects, motion graphics, audio post-production, and more. One of its strongest points—especially to the professionals who use it daily on television and film productions—is efficient encoding and decoding. That function has been strengthened through collaborative engineering with Intel and the latest video graphics technology provided by 12th Gen Intel® Core™ processor technology and Intel® Arc™ graphics products. Hyper Encode—a technology that falls under Intel’s Deep Link feature set—offers unprecedented levels of encoding performance.

Increasing Productivity for Creatives

The engineering teams at Blackmagic and Intel saw an opportunity to use version 18 of DaVinci Resolve Studio as an ideal application to fully enable the capabilities of Intel Deep Link Hyper Encode, empowering creatives to export projects quickly and maintain their production momentum. Built into the silicon of all Intel Arc graphics products, both discrete and integrated, Hyper Encode accelerates performance by using available XPU resources in a computer system, whether the system is equipped with CPUs, GPUs, or other accelerators.

AV1 Delivers Super Resolution Video at Low Bitrates

Another aspect of improving video encoding and playback is Intel Arc graphics support for the highly efficient codec AV1. AV1, based on an open-source model and thus royalty free, offers improved compression, helping stream higher quality video at lower bandwidths. This makes DaVinci Resolve highly appealing to creators who want to boost the video quality of their works without incurring a steep bandwidth penalty. Video encoded with AV1 can be directly uploaded to YouTube and other platforms.

Improving Video Production On-Premises or in the Cloud

Functionality engineered into the Intel Arc family of products has given distinct opportunities to developers producing video content in the latest formats, particularly those characterized by large file sizes and time-sensitive production workflows. Much of DaVinci Resolve is designed for collaborative workflows in which team members often work in the cloud on a single timeline and responsive, near real-time editing is required. The combination of Deep Link technology, AV1 codec efficiency, and video accelerators that are integral to Intel-based processors deliver on the promise of high-productivity workflows. For example, the newly developed 12th Gen Intel Core processor technology includes a hybrid architecture, up to eight performance cores (P-cores) and eight efficiency cores (E-cores). Tasks are intelligently assigned by the Intel Thread Director, giving creators greater

real-world multitasking performance and enhanced connectivity, using overclocking when necessary to increase the performance to maximum levels.

Performance benefits can accrue when systems contain multiple media engines working in conjunction. As shown in Figure 1, using Deep Link technology with the 12th Gen Intel Core media engines and an Intel Arc GPU results in performance increases of as much as 1.6 times better than a single GPU alone.² For more details, [view the video](#).

Enabling Technologies

Blackmagic took advantage of several enabling Intel video technologies in the development of DaVinci Resolve Studio 18. Intel Quick Sync has been a feature of select Intel processor microarchitectures since January 2011. Blackmagic harnessed the dedicated media processing capabilities of the next-generation version of Intel Quick Sync video in their solution to enhance and accelerate operations.

Intel oneAPI Video Processing Library (Intel oneVPL) figured in much of the high-performance optimization of video tasks and the high-speed encoding and decoding of video streams. The Intel Distribution of the OpenVINO Toolkit also helped with the streamlining of visual computing operations and intelligent use of the hardware resources available to the solution.

Highlights of DaVinci Resolve Studio 18

The latest iteration of DaVinci Resolve Studio 18 offers tremendous versatility in handling video formats, codecs, color spaces, and more. As enabled by the latest Intel Graphics technology, DaVinci Resolve offers support for the modern, efficient codecs in use today, including H.264/AVC, VP9, H.265/HEVC, and AV1.

Real-time interaction in the Blackmagic Cloud lets production staff members to work together freely regardless of geographic location.

Blackmagic and Intel have collaborated to deliver the tools and capabilities to equip and delight professionals and prosumers alike .

Key Features of DaVinci Resolve 18 Studio include:

- **Available as a single-purchase application** (no subscription needed) or a free, well-equipped, public version.
- **Broad portfolio of professional, post-production tools** simplifies color grading, editing, sound engineering, and special effects.
- **Enhanced remote collaboration** brings teams together for real-time work on the same timeline in the Blackmagic Cloud.
- **New FX features** include ultra beauty, 3D depth maps, and improved subtitling for editors.
- **A new Proxy Generator app** creates and manages proxies, plus a new proxy menu.
- **Provides an all-in-one solution** for post production tasks through dedicated workspaces residing in "pages."

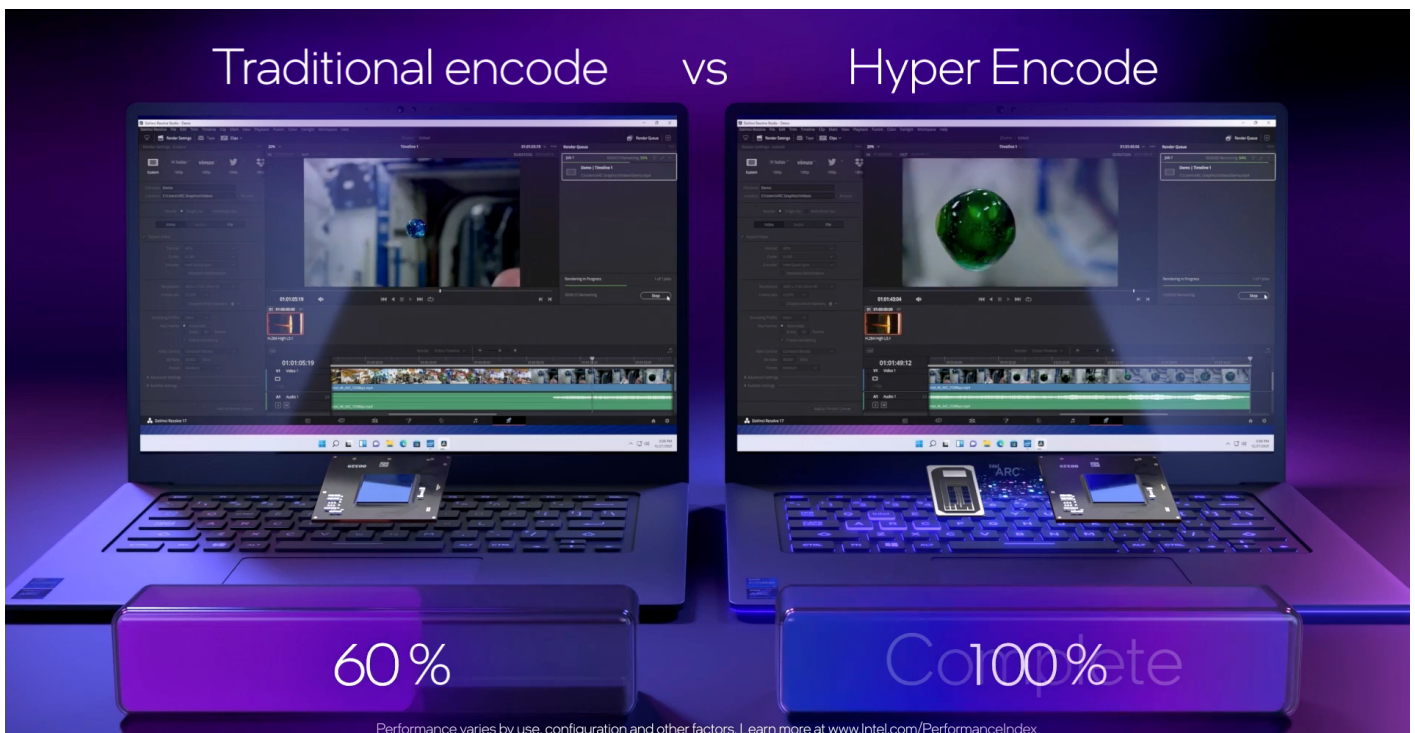


Figure 1. DaVinci Resolve employs Hyper Encode to reduce encoding times substantially compared to traditional encoding.

Resources

Blackmagic Design DaVinci Resolve 18

As the leading choice of many television and film production companies, Blackmagic DaVinci Resolve offers noteworthy quality and exceptional creative tools developed by experts in the field, a perfect complement for the latest Intel video graphics technologies. With DaVinci Resolve, you gain access to the tools professional colorists, editors, VFX artists, and sound engineers use to improve their craft.

[Learn more >](#)

Leading the Creative Video Revolution

Blackmagic has grown rapidly to become one of the world's leading innovators and manufacturers of creative video technology. And that's because our philosophy is refreshing and simple – to help true creativity blossom.

Blackmagic Design's founders have had a long history in post-production editing and engineering. With extensive experiences in high-end telecine, film, and post, harnessed with a real passion for perfection, Blackmagic set out to change the industry forever.

blackmagicdesign.com



1. *Let's Create with Intel Arc Graphics*. Intel. April 2022. <https://www.intel.com/content/www/us/en/products/docs/arc-discrete-graphics/creator.html>

2. Ibid.

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