

The Future of AI Software: DaVinci Resolve

The future of personal computing is being redefined by the integration of AI directly into software, powered by dedicated AI accelerators called NPUs (Neural Processing Units). As Windows evolves to support a new generation of intelligent features, applications are becoming faster, more context-aware, and more capable of adapting to user needs in real time. Signal65 explores the key AI-enabled capabilities emerging within the Windows ecosystem, highlighting how NPUs are unlocking new levels of performance and efficiency across everyday tasks, enterprise workflows, and entirely new user experiences.

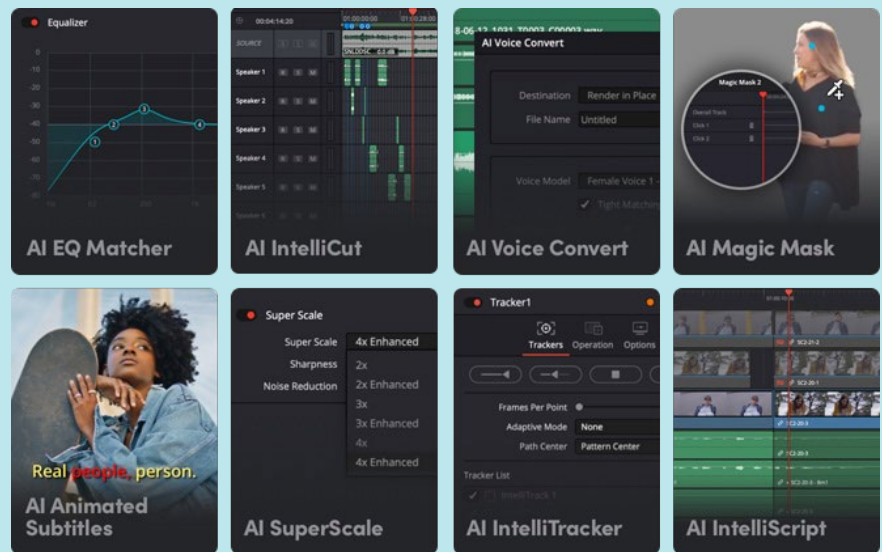


DaVinci Resolve: Professional Video Editing Reimagined

DaVinci Resolve stands as one of today's most popular video editing applications, serving both professional filmmakers and content creators who demand powerful, accessible tools. Developed by Blackmagic Design, the software is available in both a feature-rich paid version (DaVinci Resolve Studio) and a robust free version, making professional-grade video editing accessible to creators at every level.

AI integration represents a natural evolution for video editing software, where complex, time-intensive tasks can be dramatically accelerated through machine learning. DaVinci Resolve has embraced this transformation

through its DaVinci AI Neural Engine, which has been enhanced with AI-powered features over recent years. Following Blackmagic Design's addition of Snapdragon X Elite support in June 2024, AI tools now leverage Qualcomm's integrated Hexagon NPU to accelerate critical functions including Magic Mask, Person Mask, Object Mask, and resolution upscaling.



“

DaVinci Resolve features some of the most cutting edge technology in the industry today. The DaVinci AI Neural Engine is an advanced machine learning system powering many of the software's most powerful tools, and is fully supported in Apple M series and Snapdragon X Elite.

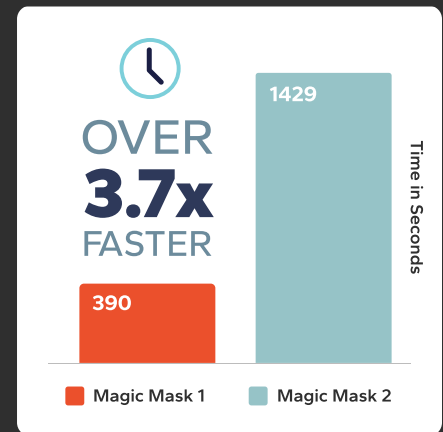
NPU Utilization & Performance

Magic Mask

The Magic Mask tool revolutionizes object removal and manipulation in video footage. Traditional masking requires frame-by-frame manual outlining—a process similar to green screen work, but without the convenience of a uniform background color. Magic Mask eliminates this tedious workflow by intelligently tracking objects and people based on a single outline applied to just one frame.

While Magic Mask dramatically reduces manual work, the computational demands typically result in processing times that can extend from minutes to hours, even for short clips. The integration of Snapdragon X Elite's NPU transforms this experience entirely.

We tested how long it took to Magic Mask out a single object in an 8-second clip in DaVinci Resolve Studio 20, which offers both NPU-accelerated Magic Mask 1 and GPU-reliant Magic Mask 2 tools. We used the Acer Swift 14 AI laptop for this comparison, and we found that Magic Mask 2 finished in a little under 25 minutes, while Magic Mask 1 was over 3.7 times faster took only six and a half minutes. This transforms what was once a lengthy batch process into a workload that's more similar to a quick render. While using Magic Mask 2 just a few times could take hours, using NPU-powered Magic Mask 1 multiple times might not even take an hour.



AI SuperScale

Resolution upscaling showcases another area where AI delivers immediate, visible benefits. Rather than simple interpolation, AI-enhanced upscaling intelligently reconstructs detail and sharpness when rendering footage at higher resolutions.

Testing a Full HD clip rendered at 4K demonstrated clear quality improvements with AI enhancement. While standard 4K upscaling showed minimal improvement over the original 1080p footage, the AI-enhanced version delivered noticeably

increased sharpness and clarity, all processed efficiently by the Snapdragon X Elite without requiring additional CPU or GPU resources or significantly impacting power consumption.



Today, over 20 applications leverage Qualcomm's Hexagon NPU to deliver enhanced performance, enable entirely new features, and improve system efficiency. Collectively, these applications offer over 50 unique AI-powered capabilities spanning diverse use cases, from real-time video conferencing effects and advanced photo editing tools to local LLM implementations that bring sophisticated AI experiences directly to users' hardware without cloud dependencies.

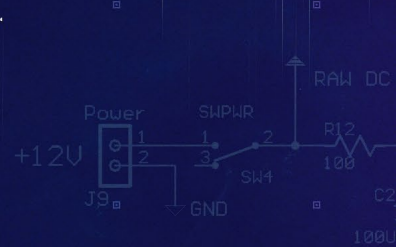
This ecosystem demonstrates how NPU acceleration is transforming software across categories, enabling developers to implement AI features that were previously impractical due to performance or power constraints. As more applications adopt NPU optimization, users benefit from faster processing, longer battery life, and AI capabilities that respond instantly to their needs.

Looking Forward

DaVinci Resolve's NPU integration demonstrates both immediate performance benefits and a glimpse into the future of AI-enabled software. Much like how GPUs evolved from specialized graphics processors to general-purpose computing accelerators, NPUs are positioned to become the dedicated platform for AI workloads, delivering superior performance compared to both CPUs and GPUs for machine learning tasks.

Through continued investment in both hardware and software AI capabilities, Qualcomm and Microsoft are establishing NPUs as the foundation for local AI processing, enabling more responsive, efficient, and capable applications across the Windows ecosystem.

Over 50 NPU-powered AI Experiences on Snapdragon X Series Processors



Creator Apps	AI Experience
Adobe Premiere Pro	<ul style="list-style-type: none"> Audio Category Tagger to sort different audio clips into categories like ambience or dialog Scene Edit Detection automatically labels cuts in raw footage for easier editing Text-Based Editing builds a transcript for a video, and editing the transcript instantly edits the video for rough cuts
Automatic1111	Image generation from text using Stable Diffusion and ability to customize parameters
Blender+ControlNet	3D scene to 2D image generation via tools like Automatic1111
Copilot+	<ul style="list-style-type: none"> Image generation and photo editing using AI-powered tools like generative fill Easy step retracing with Windows Recall Improved gaming performance and visual quality with Super Resolution Video conferencing features like real-time translation, auto framing, portrait lighting, and more
DaVinci Resolve	<ul style="list-style-type: none"> AI-accelerated Magic Mask tool for objects and people Better resolution upscaling during rendering
Djay Pro	Separating different instruments and vocals with Neural Mix, and syncing different songs with varying rhythms together with BeatGrid
Gigapixel AI	Crisp upscaling for photos originally taken at low resolution
GIMP+SD	Image generation from text using Stable Diffusion
Luminar Neo	Photo editing with AI-assisted sharpening effects and resolution upscaling
Moises Live	<ul style="list-style-type: none"> Instrument and vocal separation for music editing Enhanced performance compared to running on the CPU
Enterprise Apps	AI Experience
Camo Studio	On-the-fly video effects like auto-framing, virtual green screen, and blurred background
Copilot+	<ul style="list-style-type: none"> Image generation and photo editing using AI-powered tools like generative fill Easy step retracing with Windows Recall Improved gaming performance and visual quality with Super Resolution Video conferencing features like real-time translation, auto framing, portrait lighting, and more
Dynamo AI	Guardrails for AI provided through organizations to prevent misuse
McAfee	AI-powered detection of deepfaked audio
Zoom	Virtual background replacement and portrait lighting for video conferencing
Productivity Apps	AI Experience
AnythingLLM	<ul style="list-style-type: none"> Easy setup for small and powerful Microsoft and Meta LLMs with long context windows Useful LLM features like automation, RAG, and inferencing"
Copilot+	<ul style="list-style-type: none"> Image generation and photo editing using AI-powered tools like generative fill Easy step retracing with Windows Recall Improved gaming performance and visual quality with Super Resolution Video conferencing features like real-time translation, auto framing, portrait lighting, and more
Liquid Text	Fast annotation of documents using AI
LMStudio	Run LLMs locally and configure them to your liking

Visit Qualcomm for more info: <https://www.qualcomm.com/snapdragon/laptops-and-tablets/npu-powered-ai-experiences>