IN THE UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

NOKIA TECHNOLOGIES OY, **Plaintiff,** **v.** **HP, INC.,** **Defendant.**	**Civil Action No.**

ORIGINAL COMPLAINT

Plaintiff Nokia Technologies Oy ("Nokia," or "Plaintiff") files this Original Complaint against HP, Inc. ("HP" or "Defendant") and allege as follows:

NATURE OF THE ACTION

1. Nokia's patent portfolio includes claims essential to decoding video according to the H.264 Advanced Video Coding ("H.264") and H.265 High Efficiency Video Coding ("H.265") Standards promulgated by the International Telecommunications Union ("ITU"). The H.264 and H.265 Standards are some of the most widely used video decoding standards in the world.[1] Nokia's patents also include claims relating to encoding video.

2. HP's unlicensed products (which support and implement, for example, H.264 and H.265 decoding), including without limitation HP's laptop and desktop computers ("Accused Products"), infringe Nokia's Asserted Patents (defined below).

3. Nokia is a leading innovator in video coding technology with one of the strongest video coding patent portfolios in the world. Nokia's patented inventions allow video to be

[1] *See, e.g.*, https://valuehub.hp.com/fileadmin/downloads/technical-brief-true-graphics.pdf ("The industry's most common video format for recording, compression, and distribution of video and graphics content is H.264.").

AMAZON-1032
8,204,134

transmitted and received over communications networks, such as Wi-Fi or cellular networks, with high quality and dramatically lower bandwidth requirements, and minimize the amount of data it takes to receive and store these videos on mobile devices.

4. Nokia helped to pioneer the development of modern video coding technology and has one of the strongest video coding patent portfolios in the world. Nokia's patented inventions allow video to be transmitted and received over communications networks, such as Wi-Fi or cellular networks, with high quality and dramatically lower bandwidth requirements, and minimize the amount of data it takes to receive and store these videos on mobile devices, such as mobile phones, laptop computers, and tablet computers. For example, Nokia's patents include claims essential to decoding video according to the H.264 and H.265 Standards.

5. HP currently benefits and has benefitted greatly from Nokia's innovations, which among other things enable HP products to stream and capture high quality video more efficiently and effectively.

6. Dozens of companies have taken licenses to Nokia's essential patent claims at rates that are reasonable and non-discriminatory. Yet, despite receiving multiple offers from Nokia, HP has refused to take a license to Nokia's H.264 and H.265 essential decoding patent claims. HP's failure to negotiate in good faith to reach an agreement on terms for a license to Nokia's standard essential patents for the relevant standards (including Nokia's patented H.264 and H.265 technology) has forced Nokia to institute this lawsuit.

PARTIES

7. Plaintiff Nokia Tech is a foreign corporation organized under the laws of Finland, with its principal place of business at Karakaari 7, FIN-02610, Espoo, Finland. Nokia Tech is a wholly-owned subsidiary of Nokia Corporation ("Nokia Corp."), and is the sole owner by assignment of all right, title, and interest in U.S. Patent Nos. 7,532,808; 8,204,134; 7,724,818;

10,536,714; 11,805,267; 8,077,991; 8,050,321; 6,950,469; 7,280,599; 8,036,273 (the "Asserted Patents").

8. On information and belief, HP, Inc. is a Delaware corporation with its principal place of business at 1501 Page Mill Road, Palo Alto, California 94304-1112.

JURISDICTION AND VENUE

9. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1332.

10. Complete diversity exists. Nokia Technologies Oy is a foreign corporation organized under the laws of Finland. HP is a Delaware corporation with a principal place of business in California.

11. The amount in controversy exceeds $75,000.

12. Moreover, this Court has exclusive subject matter jurisdiction over the patent infringement claims in this case under 28 U.S.C. §§ 1331 and 1338, and over the non-patent claims under 28 U.S.C. §§ 1367, 2201, and 2202, as the non-patent claims are so related to the patent infringement claims that they form part of the same case or controversy under Article III of the United States Constitution.

13. The Court has specific personal jurisdiction over HP because HP has committed acts of infringement in this District.

14. This Court has general personal jurisdiction over HP by virtue of its incorporation in the State of Delaware. HP has appointed a registered agent for service of process: The Corporation Trust Company, Corporation Trust Center, 1209 Orange St., Wilmington, DE 19801.

15. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400. For example, venue is proper as to HP in this District because HP is incorporated in this District.

NOKIA'S INVESTMENT IN VIDEO CODING STANDARDS AND RESULTING PATENTS

16. Nokia has consistently been one of the major contributors to wireless communication, audio, and video standards and technologies that enable many features that are commonplace and expected of today's consumer electronics.

17. In early 1998, the Video Coding Experts Group ("VCEG") of the International Telecommunication Union-Telecommunication (ITU-T) issued a call for proposals on a project called H.26L, the "L" standing for "long term."

18. The development of H.26L eventually led to ITU-T Recommendation H.264 Advanced Video Coding for Generic Audiovisual Services ("the H.264 Standard"). Thereafter, work began on the successor to the H.264 Standard, which published as ITU-T Recommendation H.265 High Efficiency Video Coding ("the H.265 Standard"). Nokia, a video coding innovator, contributed numerous innovations to the development of video decoding standards. In addition, Nokia has developed many other video coding technologies.

19. Over the last few decades, internet traffic has evolved from simple, text-based interfaces to a plethora of media, including video. As technology has evolved, the importance and use of video has skyrocketed. Video coding technologies, including the H.264 and H.265 Standards, are crucial to the development and evolution of modern communication particularly as video traffic has become an increasingly outsized share of total consumer Internet traffic.

20. The H.264 and H.265 Standards enable efficient and reliable video decoding in millions of devices, including computers. The H.264 and H.265 Standards reduce the amount of data needed to decode digital video and are the two most prominent video decoding standards in the world. These advances in video coding technology were made possible by the work of Nokia and other video coding innovators.

21. The H.264 Standard, first released in 2003, was designed to decode high quality video using lower bit rates than previous standards. The H.264 Standard is flexible enough to implement across a variety of applications, networks, and systems and offers vastly improved performance over previous standards, such as MPEG-2 and MPEG-4 Part 2.

22. The H.265 Standard, first released in 2013, built on the H.264 standard in several key respects. The H.265 Standard enables consumers to decode video with even less bandwidth than before and to decode higher quality video in higher resolutions.

23. In particular, over the past five years, video has become the main form of internet traffic, coinciding with, for example, the rise in popularity of internet and social media apps. In 2022, video was estimated to be 82% of global consumer internet traffic.

24. Nokia Corp., together with its wholly owned subsidiaries, has cumulatively invested over €140 billion in research and development relating to mobile communications and video coding technologies and, because of this commitment, currently owns more than 20,000 patents worldwide. These include many patents, including some of the Asserted Patents, with standard essential claims relating to the H.264 and H.265 Standards.

NOKIA'S COMPLIANCE WITH THE ITU COMMON PATENT POLICY AND NOKIA'S RELEVANT DECLARATIONS

A. The ITU and the H.264 and H.265 Standardization Process

25. Certain claims of Nokia's patents relate to the H.264 and H.265 Standards developed by the ITU.

26. The ITU and the International Standards Organization ("ISO") jointly published a standard referred to as "H.264," "MPEG-4 part 10," or "Advanced Video Coding" (the "H.264 Standard"). The H.264 Standard development process was initiated by Video Coding Experts

Group ("VCEG") and finalized by the Joint Video Team ("JVT"), which was a collaborative effort between VCEG and the Moving Picture Experts Group ("MPEG").

27. Following publication of the H.264 Standard, the JVT began work on the H.265 Standard. The H.265 Standard, which is also known as "MPEG-H Part 2" or "High Efficiency Video Coding," represents the next step for video quality and coding efficiency after the widely successful H.264 Standard.

28. The ITU was formed in 1865 at the International Telegraph Convention and, in 1947; it became a specialized agency of the United Nations, responsible for issues that concern information and communication technologies. The ITU handles a variety of matters and thus is organized into various sectors. One of the sectors is Telecommunication Standardization or "ITU-T." The mission of ITU-T is to ensure efficient and timely production of standards related to the field of telecommunications. The standards developed by ITU-T are referred to as "Recommendations."

29. Within ITU-T, members come together and propose technological solutions for inclusion in the draft Recommendations. The goal is to draft Recommendations that incorporate the best available technology to ensure that the standards are of a high quality. The H.264 and H.265 Standards described above are detailed in the H.264 and H.265 Recommendations.

30. The contributions that are ultimately included in a Recommendation are often covered by one or more patent claims, and thus the ITU developed the Common Patent Policy in order to assist with usage of patented technologies in its standards.

31. The ITU published Guidelines for Implementation of the Common Patent Policy ("the Guidelines"). The Guidelines explain that the Common Patent Policy "was drafted in its operative part as a checklist, covering the three different cases which may arise if a

Recommendation | Deliverable requires licenses for Patents to be practiced or implemented, fully or partly." [*"Guidelines for Implementation of the Common Patent Policy for ITU-T/ITURIISOIIEC,"* ITU, Rev. 4 (Dec. 16, 2022) https://www.itu.int/itudoc/itu-t/patents/policy/guide.pdf].

32. The Common Patent Policy states:

> 2. If a Recommendation | Deliverable is developed and such information as referred to in paragraph 1 has been disclosed, three different situations may arise:
>
> 2.1 The patent holder is willing to negotiate licences free of charge with other parties on a non-discriminatory basis on reasonable terms and conditions. Such negotiations are left to the parties concerned and are performed outside ITU-T/ITU-R/ISO/IEC.
>
> 2.2 The patent holder is willing to negotiate licences with other parties on a non-discriminatory basis on reasonable terms and conditions. Such negotiations are left to the parties concerned and are performed outside ITU-T/ITU-R/ISO/IEC.
>
> 2.3 The patent holder is not willing to comply with the provisions of either paragraph 2.1 or paragraph 2.2; in such case, the Recommendation | Deliverable shall not include provisions depending on the patent.
>
> 3. Whatever case applies (2.1, 2.2 or 2.3), the patent holder has to provide a written statement to be filed at ITU-TSB, ITU-BR or the offices of the CEOs of ISO or IEC, respectively, using the appropriate "Patent Statement and Licensing Declaration" form. This statement must not include additional provisions, conditions, or any other exclusion clauses in excess of what is provided for each case in the corresponding boxes of the form.

[*"Common Patent Policy for ITU-TIITU-RIISOIIEC,"* ITU (2022), https://www.itu.int/en/ITU-T/ipr/Pages/policy.aspx].

33. The Guidelines define the term "Patent" to be "those claims contained in and identified by patents, utility models and other similar statutory rights based on inventions (including applications for any of these) solely to the extent that any such claims are essential to the implementation of a Recommendation | Deliverable. Essential patents are patents that would be required to implement a specific Recommendation | Deliverable." [*"Guidelines for*

Implementation of the Common Patent Policy for ITU-T/ITURIISOIIEC," ITU, Rev. 4 (Dec. 16, 2022) https://www.itu.int/itudoc/itu-t/patents/policy/guide.pdf]. The definition of "Patent" provided by the Guidelines is mirrored in the Patent Statement and Licensing Declaration Form that is completed by patent holders who may have patent claims essential to the H.264 or H.265 standards. The Patent Statement and Licensing Declaration Form states that identifying specific patents on the form is optional but not required. The ITU thus deems "essential" only patent claims that are essential or necessary for implementation of a specific Recommendation.

34. The H.264 Recommendation specifies the implementation of decoders and specifically defines the "decoding process" as "[t]he process specified in this Recommendation | International Standard that reads a *bitstream* and derives *decoded pictures* from it." Ex. 1 at 6 [Recommendation ITU-T H.264]. It does not, however, specify the implementation of encoders. The H.264 Recommendation defines "encoding process" as "[a] process, not specified in this Recommendation | International Standard, that produces a *bitstream* conforming to this Recommendation | International Standard." *Id*.

35. Similarly, the H.265 Recommendation only specifies the implementation of decoders. *See* Ex. 2 at 5 [Recommendation ITU-T H.265] (defining (i) "decoding process" as "[t]he process specified in this Specification that reads a *bitstream* and derives *decoded pictures* from it" and (ii) "encoding process" as "[a] process not specified in this Specification that produces a *bitstream* conforming to this Specification.").

B. Nokia's Compliance with the ITU Common Patent Policy and Nokia's Relevant Declarations

36. Nokia protects its investments in research and development with intellectual property. Nokia owns many patents related to video decoding technology, and it continues to develop and secure intellectual property as it innovates in this industry. By voluntarily contributing

its research and development innovations to the standard-setting process at the ITU—through technical contributions in standardization meetings—Nokia has a large number of patent claims essential to the H.264 and H.265 Standards. Industry members attending the standardization meetings chose to adopt Nokia's technology into the standards because of its benefits and merit.

37. Nokia has committed that it is prepared to grant licenses to any patent claims essential to the H.264 and H.265 Standards on reasonable and non-discriminatory (RAND) terms and conditions.

38. Consistent with the ITU Common Patent Policy, Nokia timely notified standard setting participants that Nokia may obtain patents on its contributions, including by submitting Patent Statement and Licensing Declarations to the ITU in which Nokia declares in good faith that it is prepared to grant licenses to the essential claims of the relevant patents on RAND terms and conditions.

C. Nokia's Negotiations with HP

39. Nokia has been negotiating with HP in a good faith effort to license Nokia's H.264- and H.265-related patents ("Nokia's Video Patents") since 2019. In that time, HP has sold hundreds of millions of infringing products but has paid no royalties. Nokia has made offers to HP consistent with licenses agreed to by over 50 companies, but the parties have been unable to reach agreement.

40. In November 2019, Nokia contacted HP regarding its infringement of Nokia's patents related to the H.264 standard ("Nokia's H.264 Patents"). Nokia proposed that the parties enter into a non-disclosure agreement ("NDA") so Nokia could share confidential information regarding HP's infringement, and so the parties could share commercially sensitive information, including HP's past sales volumes and projections. HP refused to agree that any technical information exchanged should be covered by NDA. Although the parties were in the process of

negotiating the provisions of the NDA, Nokia proceeded with delivering a presentation to HP on March 12, 2020 that summarized certain aspects of the H.264 standard and Nokia's related patents.

41. On July 22, 2020, Nokia sent HP a list of exemplary Nokia H.264 Patents and the corresponding sections of the H.264 standard, as well as identification of infringing HP products. Nokia also sent six exemplary H.264 decoding claim charts.

42. On December 8, 2020, an NDA was executed. Following execution of the NDA, Nokia sent HP a license offer covering the decoding claims of its H.264 Patents at its well-established rate. Nokia also sent the terms and conditions corresponding with the license offer and requested a call with HP on December 17 or 18 to discuss.

43. On January 15, 2021, the parties finally spoke by phone. Over the next several weeks, Nokia provided HP with additional materials, including seven claim charts for claims relating to encoding video into H.264-compliant formats and an anonymized list of twelve exemplary licenses supporting Nokia's offer. Nokia also sent HP lists of patents with claims relating to H.264 decoding and to encoding video into H.264-compliant formats.

44. On May 13, 2021, Nokia sent HP an additional 32 claim charts showing HP's infringement of encoding and decoding patent claims in Nokia patents relating to the H.264 standard. It also sent license offers for H.264 decoding and encoding video into H.264-compliant formats at its well-established rates.

45. On July 9, 2021, Nokia sent HP 24 claim charts showing HP's infringement of encoding and decoding patent claims in Nokia patents related to the H.265 Standard.

46. On August 13, 2021, Nokia also extended offers for Nokia's claims relating to encoding video into H.265-compliant formats, decoding H.265-compliant video, and a combined

offer for both, all at Nokia's well-established rates. These offers also included lower rates for HP's lower price products.

47. On August 27, 2021, Nokia sent HP a list of exemplary Nokia H.265 patents claims and HP products, and on September 28, 2021, Nokia sent an additional list of decoding and encoding patent claims infringed by HP's products. On October 1, 2021, Nokia sent HP an additional anonymized list of H.264 and H.265 licenses supporting its offers.

48. From January to March 2022, the parties engaged in extensive technical discussions over Nokia's patents, meeting seven times. Once the technical meetings concluded, Nokia sent HP an additional offer, this one a lump sum offer covering its H.264 and H.265 decoding and encoding patent claims, based on Nokia's well-established rates.

49. HP has not accepted any of Nokia's offers. To this day, HP has not paid a single royalty for its infringement despite Nokia's good faith efforts to negotiate.

50. HP's actions as an unwilling licensee, its refusal to negotiate in good faith, and its continued unauthorized use of Nokia's patents have prompted Nokia to seek the relief detailed in this Complaint.

THE NOKIA ASSERTED PATENTS

51. Nokia complied with any applicable marking requirements under 35 U.S.C. § 287(a) at least because the asserted method claims do not require marking and/or there is nothing to mark.

A. U.S. Patent No. 7,532,808 ("the '808 Patent")

52. The '808 Patent, entitled "Method for Coding Motion in a Video Sequence" issued on May 12, 2009, to inventor Jani Lainema. The '808 Patent issued from U.S. Patent Application No. 10/390,549, filed on March 14, 2003, and claims priority to U.S. Provisional Application No.

60/365,072, filed on March 15, 2002. The ’808 Patent expires on December 11, 2025. A true and correct copy of the ’808 Patent is attached as Exhibit 3.

53. The ’808 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’808 Patent is directed to novel and unconventional improvements to motion-compensated prediction in the field of digital video coding. The ’808 Patent provides improvements over prior motion compensated prediction and video compression techniques that result in substantial benefits to motion prediction, video compression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

54. A digital video sequence is a sequence of still images with “the illusion of motion being created by displaying consecutive images of the sequence on after the other at a relatively fast rate.” ’808 Patent at 1:15-19. These still images are referred to as frames. “Each frame of an uncompressed digital video sequence comprises an array of image pixels.” *Id*. at 1:32-33. Frames in commonly used video formats may have millions of pixels.

55. The ’808 Patent describes that video frames in a given digital video sequence may contain various forms of redundancy. *Id.* at 2:36-46. “Temporal redundancy” refers to the fact that “objects appearing in one frame of a sequence are likely to appear in subsequent frames.” *Id*.

56. As the ’808 Patent explains, “motion-compensated prediction” can take advantage of temporal redundancy to “predict” the image content of some frames from “one or more other frames in the sequence, known as ‘reference frames.’” *Id.* at 3:15-18. Predictions can be achieved by tracking the motion of objects or regions of an image between a given frame and one or more reference frames. *Id.* at 3:18-23.

57. Prior to the ’808 Patent, some motion-compensated prediction techniques involved assigning “coding modes” to “macroblocks” (a region of 16x16 image pixels in the original image). *See id*. at 1:64-2:6. One such coding mode was referred to as “SKIP” mode. SKIP mode was assigned to macroblocks that could be copied from a reference frame without using or having to take into account motion-compensated prediction. ’808 Patent at 10:64-67. SKIP mode prior to the ’808 Patent provided benefits in certain scenarios without motion from frame to frame.

58. As explained in the ’808 Patent, “it is necessary for a corresponding video decoder to be aware of that coding mode in order for it to correctly decode the received information relating to the macroblock in question.” ’808 Patent at 11:20-24. “Therefore, an indication of the coding mode assigned to each macroblock is provided in the video bit-stream.” ’808 Patent at 11:24-27. The indication is transmitted using a variable length codeword, where “the shortest codeword is used to represent the coding mode that is statistically most likely to occur.” ’808 Patent at 11:27-32.

59. However, SKIP mode could not effectively address problems with certain types of redundancy within video sequences—for example, global and regional motion, such as might occur when phenomena like panning or zooming are present in a video sequence. *Id*. at 12:41-47. For example, redundancies may occur in a video sequence when footage is captured by a video camera moving horizontally from fixed position or when translational motion occurs, such as when a volleyball moves overhead across a court. Prior motion-compensated prediction techniques could not efficiently or effectively handle these scenarios. For example, in the prior H.263+ video coding standard, this global motion scenario was addressed by using a highly complex global motion compensation technique that required the decoder to rely on additional information. *Id*. at 12:48-13:30. This prior solution was computationally intensive and less efficient. *Id*.

60. The ’808 Patent overcame these technical challenges in the prior systems by inventing an improved skip coding mode. The ’808 Patent’s improved skip coding mode can address certain scenarios with motion (and/or without motion) without the need for additional motion data For example, the ’808 Patent teaches that the skip coding mode is associated with either a zero (non-active) motion vector or a non-zero (active motion vector), where the decision is made by analyzing the motion of other macroblocks or sub-blocks in a region surrounding the macroblock to be coded. ’808 Patent at 14:23-32. Therefore, for example, “SKIP mode macroblocks can adapt to the motion in the region surrounding them, enabling global or regional motion to [be] taken account of in an efficient manner.” *Id*. at 14:48-51.

61. The assigned motion vector can then be used by the decoder, for example, to form a prediction for the given macroblock with respect to a reference frame. These unconventional solutions allow a decoder to, for example, reliably and efficiently decode video sequences with a drastically reduced amount of information. Because the ’808 Patent inventions use the surrounding macroblocks or sub-blocks to determine the assignment of the motion vector for the skip coding mode for an image segment, there is no need for the video decoder to use additional information in order to decode certain types of motion. *Id*. at 14:52-64.

62. The ’808 Patent therefore provides specific technological improvements to the functionality and capabilities of video coding technology that, for example, “not only provides an improvement in coding efficiency in the presence of global motion . . . but also enables regional motion to be represented in an efficient manner.” *Id*. at 14:14-22.

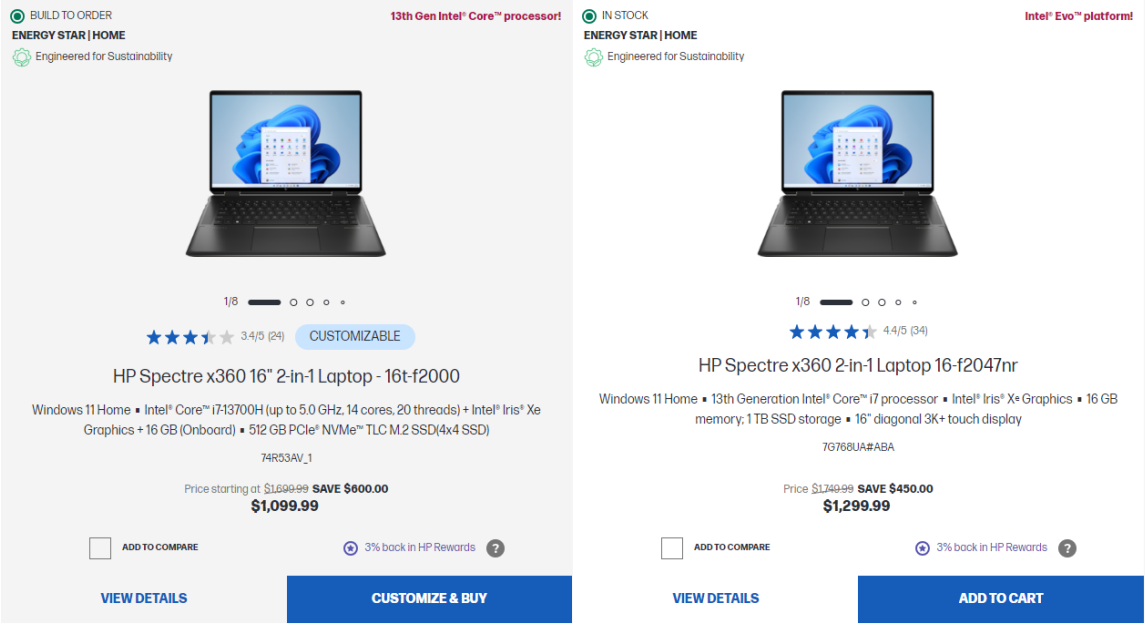
63. The novel solutions of the ’808 Patent, including redefining skip coding mode to adapt to the motion of surrounding regions, were not well-understood, routine, or conventional,

nor were they simply comprised of well-understood, routine, and conventional activities previously known to the industry.

64. On information and belief, HP directly infringes at least Claim 7 of the ’808 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of its Accused Products.

65. Because at least Claim 7 of the ’808 Patent is essential to the H.264 Standard, the Accused Products’ incorporation of the H.264 Standard infringes at least Claim 7 of the ’808 Patent.

66. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that decode H.264-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor and is capable of decoding H.264-compliant video.



Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%

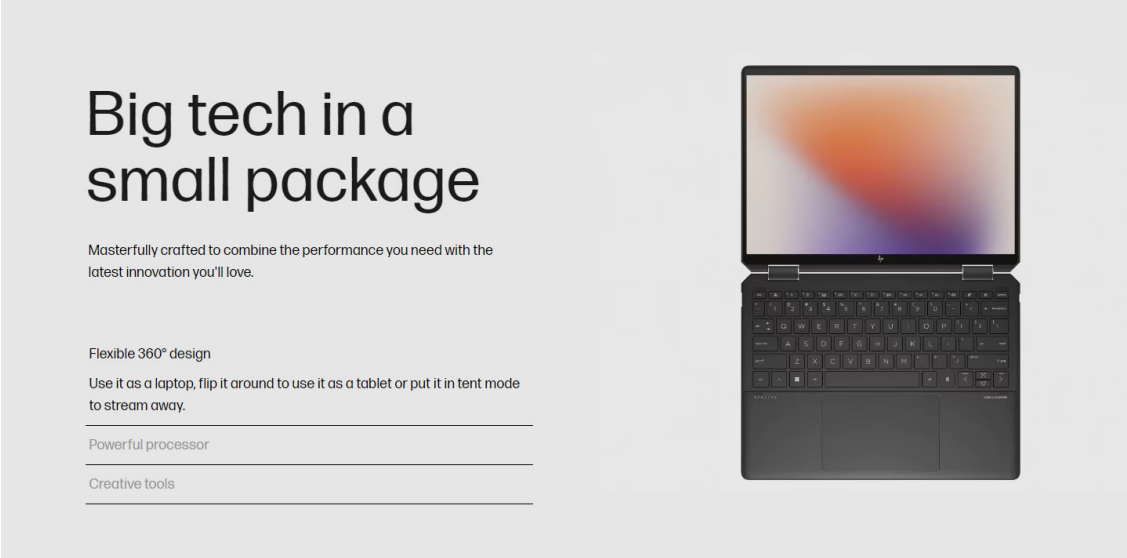
20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

67. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 7 of the '808 Patent by advertising the products' ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

68. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:

Valerie C.
Verified Purchaser
Roseville, CA
Review **1**
Vote **1**

★★★★★
My second HP Spectre
6 days ago

I've only had this laptop for a few days, so I'm not able to provide a complete review. I will say that I've owned another Spectre for 7 years and still love it. I only purchased this new one after the battery I purchased from Amazon to replace the original one overheated and caused the components to buckle and several keys no longer registered. I bought this at a great sale price no knowing if the other one would survive a repair. The old one also didn't accommodate Windows 11, so I'd likely have to replace it in a few years anyway. Specifically, I love the graphics, speed, storage space, soft touch keyboard and sleek design. I chose the 16" display again as I prefer a bigger screen over having a small, lighter laptop. The only thing I'd like more is having a dedicated numeric keypad. The Spectre is on the high end of HP laptops but worth it to me for the functionality I need. For the last 15+ years, I've had HP computers and printers exclusively and have been very happy with them. No major issues (except a failed printer head in one of my printers that was irreparable and had to be replaced). I will remain an HP customer as long as they continue to produce quality devices.

Yes, I recommend this product.

Originally posted on HP Spectre x360 2-in-1 Laptop 16-f2047nr

Helpful? (1) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

69. As another example of HP's infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.264-compliant video. An example such an Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor, both of which decode H.264-compliant video.

IN STOCK
ENERGY STAR | HOME
Engineered for Sustainability

4.4/5 (517)

HP Pavilion Desktop TP01-3055xt, Windows 11 Home, Intel® Core™ i7, 16GB RAM, 512GB SSD, 2TB HDD

Windows 11 Home ▪ 12th Generation Intel® Core™ i7 processor ▪ Intel® UHD Graphics 770 ▪ 16 GB memory; 2 TB HDD storage; 512 GB SSD storage ▪ DVD-Writer

22U58AA#ABA

IN STOCK
HOME

4.4/5 (768)

HP Pavilion Desktop TP01-2165z, Windows 11 Home, AMD Ryzen™ 5, 16GB RAM, 256GB SSD, 2TB HDD

Windows 11 Home ▪ AMD Ryzen™ 5 processor ▪ AMD Radeon™ Graphics ▪ 16 GB memory; 2 TB HDD storage; 256 GB SSD storage ▪ DVD-Writer

20W71AA#ABA

Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

NOTE: If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Format/Feature	11th and 12th Generation Intel® Core™
AVC	8-bit, 4:2:0 (NV12)	✓4k

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL	4K H264 DECODE	4K H264 ENCODE
		All	All
☐	AMD Radeon™ RX 7900 XTX	Yes	Yes
☐	AMD Radeon™ RX 7900 XT	Yes	Yes
☐	AMD Radeon™ RX 7900 GRE	Yes	Yes
☐	AMD Radeon™ RX 7600	Yes	Yes
☐	AMD Radeon™ RX 7600M XT	Yes	Yes
☐	AMD Radeon™ RX 7600M	Yes	Yes
☐	AMD Radeon™ RX 7700S	Yes	Yes
☐	AMD Radeon™ RX 7600S	Yes	Yes
☐	AMD Radeon™ RX 6950 XT	Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

70. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:

Mark S., West Reading, PA
Verified Purchaser
Review 1
Votes 2

★★★★☆
A Good Choice
15 days ago

Impressive hardware performance all around. The video is sharp, clear, and responsive; the audio has plenty of power and range. Most of my nitpicking would be along the lines of software and ergonomics, and both of those issues are a matter of getting used to a new machine and making settings tweaks, although going from Windows 10 to 11, along with trying to tame the insistent permission requests and find where they hid settings that used to be relatively instantly accessible, has proven a bit of a challenge. Of the machine itself, though, it's very much what I expected from the descriptions, and I'm very pleased with this choice.

Yes, I recommend this product.

Helpful? (2) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

71. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 7 of the ’808 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such article’s importation into the United States, in a manner that infringes the ’808 Patent.

72. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe the ’808 Patent. On information and belief, HP also advertises other HP products that infringe the ’808 Patent on its website for consumer purchase.

73. On information and belief, HP was aware of the ’808 Patent or acted with willful blindness as to the existence of the ’808 Patent at least as a result of the filing and service of this complaint. Moreover, Nokia informed HP that it was infringing the ’808 Patent when Nokia provided a claim chart and disclosed the ’808 Patent among a patent list and corresponding list of infringing HP products in July 2020.

74. On information and belief, HP contributes to the infringement of at least Claim 7 of the ’808 Patent by offering to sell or selling and/or importing a patented component or material

and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

75. A claim chart that applies Claim 7 of the ’808 Patent to the Accused Products is attached as Exhibit 12. The H.264 Standard referenced in this claim chart can be found in Exhibit 1.

B. U.S. Patent No. 8,204,134 (“the ’134 Patent”)

76. The ’134 Patent, titled “Grouping of Image Frames in Video Coding” issued on June 19, 2012, to inventor Miska Hannuksela. The ’134 Patent issued from U.S. Patent Application No. 2006/0120464 filed on June 8, 2006, and claims priority to Finnish Patent Application No. 20020127, filed on January 23, 2002. The ’134 Patent expires on January 21, 2028. A true and correct copy of the ’134 Patent is attached as Exhibit 4.

77. The ’134 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’134 Patent provides improvements over prior video decoding techniques that result in substantial benefits to video decompression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

78. “The video files in multimedia files comprise a great number of still image frames, which are displayed rapidly in succession (of typically 15 to 30 frames per s) to create an impression of a moving image.” ’134 Patent at 1:54–58. Because these files contain such a high number of frames per second, “the information comprised by consecutively displayed image frames is typically largely similar.” *Id*. at 1:62–64. This high amount of redundancy means that “to reduce the amount of data in video files, the image data can be compressed into a smaller form.” *Id*. at 2:5–6. One way to achieve this compression is to eliminate frames from the bitstream,

which "removal from the video sequence does not degrade the quality of subsequent images." *Id*. at 2:50–51. Compression of the bitstream is important when streaming because "the transmission of the multimedia data and/or the data contents are controlled by making sure that the bit rate of the transmission substantially corresponds to the playback rate of the terminal device, or, if the telecommunications network used in the transmission causes a bottleneck in data transfer, by making sure that the bit rate of the transmission substantially corresponds to the bandwidth available in the telecommunications network." *Id*. at 1:34–42.

79. "The simplest means for the streaming server to control the bit rate is to leave out [frames] having a high information content from the transmission." *Id*. at 3:26–29. However, this can cause issues for the decoder because "the frames are typically numbered according to an arithmetical series." *Id*. at 3:19–20. Therefore, when frames are removed or inserted, "the receiving terminal may therefor interpret the deviating image numbering as a signal of lost image frames and start unnecessary actions to reconstruct the image frames suspected as lost or to request a re-transmission thereof." *Id*. at 4:4–7.

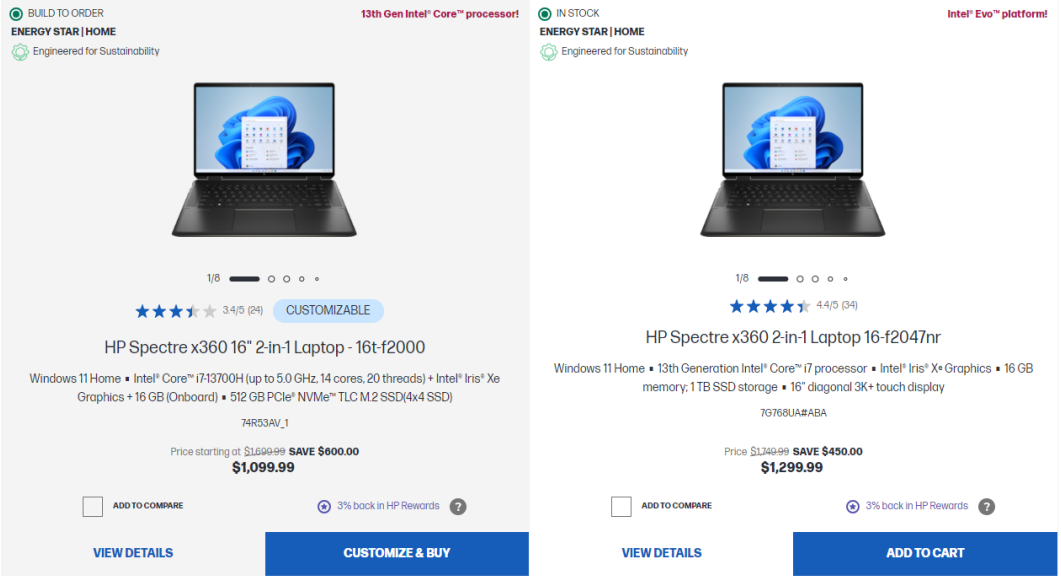
80. For example, the inventor of the '134 Patent recognized that "there [was] no process for informing the decoder a reason for the removal" of image frames. *Id*. at 4:13–14 Because of this, "if a plural number of image frames are removed, the receiving terminal may unnecessarily interpret these intentional removals as protocol errors." *Id*. at 4:15–17. The '134 Patent discloses improved techniques that "enable the decoder to take into account the image frames the encoder has intentionally removed." *Id*. at 4:22–24. In doing so, the decoder may appropriately configure a buffer memory to "provide the number of image frames corresponding to the discontinuities in the numbering of the image frames." *Id*. at 4:49–51.

81. This is advantageous as it "provides the decoder with the information, which gaps in the image frame numbering are intentional, whereby the decoder does not start unnecessary error correction actions" and "the buffer memories of the encoder and the decoder can be kept in synchronism, which enables a fluent operation of the process of reference picture selection." *Id*. at 4:66–5:4. The '134 Patent therefore improves the decoding of digital video, whereby decoders can receive bitstreams with intentionally omitted frames and maintain appropriately configured decoder buffer memory. The inventions of the '134 Patent have the benefits of allowing more fluid video playback and preventing unnecessary error protocols in video playback.

82. On information and belief, HP directly infringes at least Claim 1 of the '134 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of its Accused Products.

83. Because for example Claim 1 of the '134 Patent is essential to the H.264 Standard, the Accused Products' incorporation of the H.264 Standard infringes at least Claim 1 of the '134 Patent.

84. As just one example of HP's infringement, HP manufactures and sells laptops with graphics processing units that decode H.264-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor and is capable of decoding H.264-compliant video.



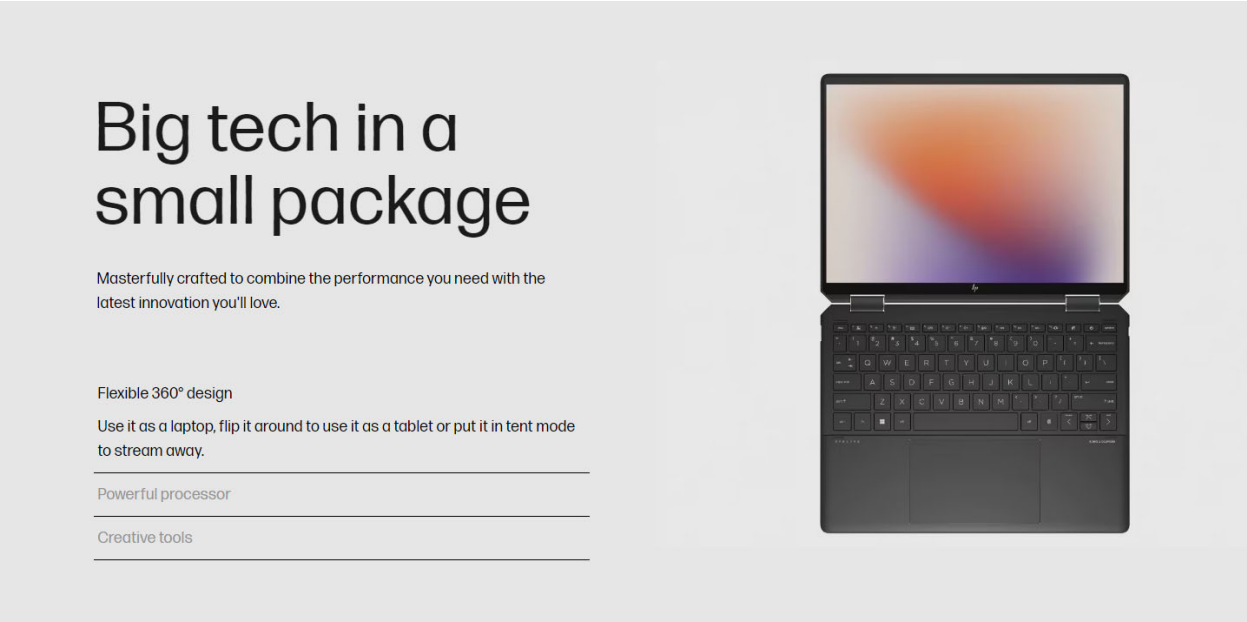
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

85. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 1 of the ’134 Patent by advertising the products’ ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

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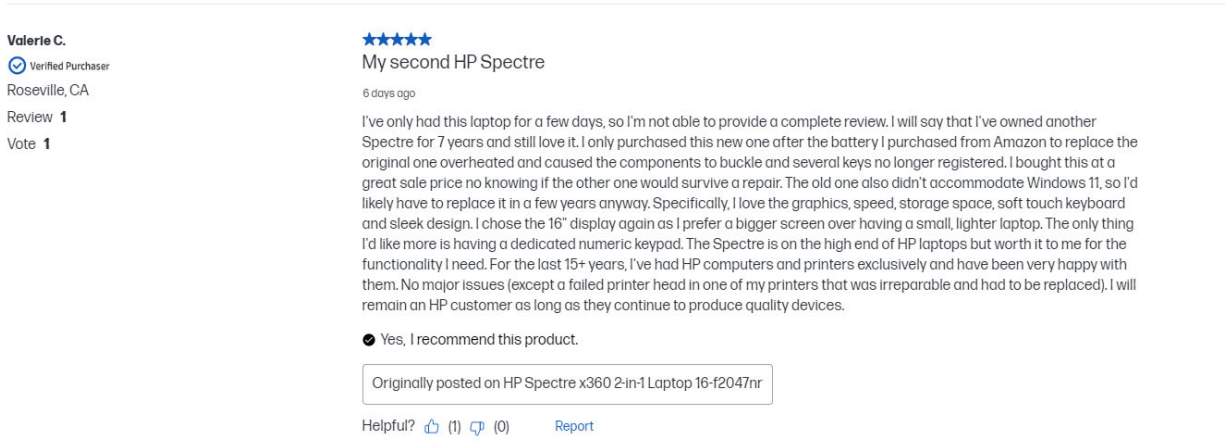
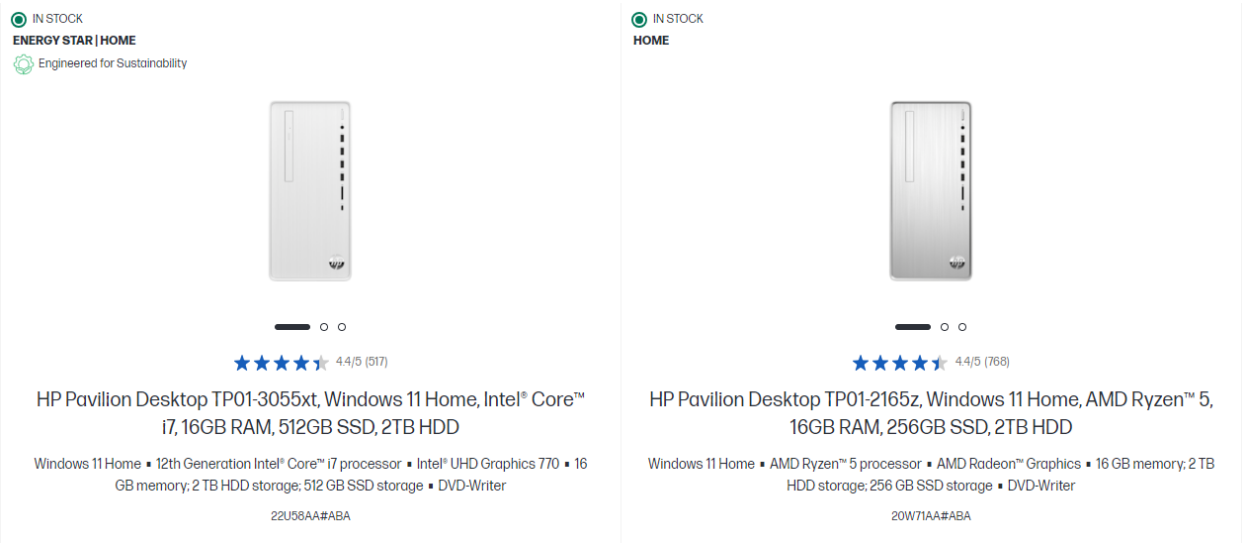


Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

87. As another example of HP's infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.264-compliant video. An example of such an HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor, and is capable of decoding H.264-compliant video.



Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

NOTE: If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Format/Feature	11th and 12th Generation Intel® Core™
AVC	8-bit, 4:2:0 (NV12)	✓4k

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL	4K H264 DECODE All	4K H264 ENCODE All
☐	AMD Radeon™ RX 7900 XTX	Yes	Yes
☐	AMD Radeon™ RX 7900 XT	Yes	Yes
☐	AMD Radeon™ RX 7900 GRE	Yes	Yes
☐	AMD Radeon™ RX 7600	Yes	Yes
☐	AMD Radeon™ RX 7600M XT	Yes	Yes
☐	AMD Radeon™ RX 7600M	Yes	Yes
☐	AMD Radeon™ RX 7700S	Yes	Yes
☐	AMD Radeon™ RX 7600S	Yes	Yes
☐	AMD Radeon™ RX 6950 XT	Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

88. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:

Mark S., West Reading, PA
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Review **1**
Votes **2**

★★★★☆
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Impressive hardware performance all around. The video is sharp, clear, and responsive; the audio has plenty of power and range. Most of my nitpicking would be along the lines of software and ergonomics, and both of those issues are a matter of getting used to a new machine and making settings tweaks, although going from Windows 10 to 11, along with trying to tame the insistent permission requests and find where they hid settings that used to be relatively instantly accessible, has proven a bit of a challenge. Of the machine itself, though, it's very much what I expected from the descriptions, and I'm very pleased with this choice.

Yes, I recommend this product.

Helpful? (2) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

89. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 1 of the ’134 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate HP Accused Products at the direction of HP, to make, use (including testing those devices and

methods), sell, or offer to sell one or more of the HP Accused Products, during or after such article's importation into the United States, in a manner that infringes the '134 Patent.

90. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop series and HP Pavilion desktop series on its website so that consumers may purchase and use the product, thus inducing its customers to also infringe the '134 Patent. On information and belief, HP also advertises other HP products that infringe the '134 Patent on its website for consumer purchase.

91. On information and belief, HP was aware of the '134 Patent or acted with willful blindness as to the existence of the '134 Patent at least as a result of the filing and service of this complaint. Moreover, Nokia informed HP that it was infringing the '134 Patent when Nokia disclosed the '134 Patent among a patent list and corresponding list of infringing HP products in July 2020. Nokia again informed HP that it was infringing the '134 Patent when Nokia provided a claim chart in May 2021.

92. On information and belief, HP contributes to the infringement of at least Claim 1 of the '134 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

93. A claim chart that applies Claim 1 of the '134 Patent to the Accused Products is attached as Exhibit 13. The H.264 Standard referenced in this claim chart can be found in Exhibit 1.

C. U.S. Patent No. 7,724,818 ("the '818 Patent")

94. Nokia owns by assignment the entire right, title, and interest in and to the '818 Patent, entitled "Method for Coding Sequences of Pictures," issued on May 25, 2010, to inventors

Miska Hannuksela and Ye-Kui Wang. The ’818 Patent issued from U.S. Application No. 10/426,928, filed on April 30, 2003, and expires on May 3, 2026. A true and correct copy of the ’818 Patent is attached as Exhibit 5.

95. The ’818 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’818 Patent provides improvements over conventional video coding techniques that result in substantial benefits to video decompression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

96. A coded picture consists of one or more slices, and a slice consists of macroblocks of pixel values. ’818 Patent at 1:51-55. Conventional video coding standards before the ’818 Patent specified a structure for a bitstream that consisted of several layers, including a sequence layer, picture layer, slice layer, and macroblock layer. *Id*. at 2:6-13. These conventional video coding standards also included the use of headers in the bitstream at the slice layer and below. *Id*. at 2:49-51. However, the data at the picture level and sequence level were included in a single parameter set structure instead of using headers. *Id*. at 2:51-56. Each instance of a parameter set included a unique identifier, and each slice header included a reference to a parameter set identifier so that the decoder could use the parameter values of the identified parameter set when decoding the slice. *Id*. at 2:56-59.

97. Prior to the ’818 Patent, one significant problem with the single parameter set structure was that many sequence-level parameters remain unchanged over parameter sets and are repeated. *Id*. at 6:54-57. In order to be able to change picture parameters (such as the picture size) without having to receive an updated parameter set synchronously with the packet stream, decoders maintained multiple parameter sets either pre-defined or transmitted at the beginning of

a session. *Id*. at 3:5-21. Receiving the multiple parameter sets at the beginning of a session with repetitive information was overburdening and caused latency and reliability issues. *Id*. at 3:17-24. Further, since the parameter sets were transmitted frequently to accommodate changes in users watching video, the redundant transmission was inefficient and very costly from a bit-rate point of view. *Id*. at 3:24-29.

98. The ’818 Patent overcame these technical challenges in the prior systems by splitting the parameter set structure and inventing multiple parameter set structures that could be nested according to the persistency and target of parameters, including a sequence parameter set and a picture parameter set. *Id*. at 4:3-5, 4:15-19. The ’818 Patent employs the unconventional solution of receiving parameter values that may change in every slice or will likely change in every picture in a slice header, including parameter values that will likely remain unchanged in multiple pictures in a picture parameter set, and including parameter values that are not allowed to change in a sequence parameter set. *Id*. at 4:24-28.

99. The ’818 Patent therefore provides a specific technological improvement to the functionality and capabilities of video decoding technology that results in increased compression efficiency and significant reduction in transmission bit-rate. *Id*. at 3:56-58, 6:50-59.

100. Conventional technology prior to the ’818 Patent did not recognize that video coding parameters may change at different rates and that some parameters may change much more frequently than others. Conventional technology prior to the ’818 Patent was not capable of utilizing parameter values with multiple parameter set structures according to the persistency and target of parameters, including a sequence parameter set and a picture parameter set.

101. The ’818 Patent recognizes and solves these specific technological problems that plagued the conventional technology at the time. The ’818 Patent’s ability to recognize parameter

values in a sequence parameter set for a sequence of pictures, parameter values in a picture parameter set for a picture, and at least one picture parameter value in a slice header, the picture parameter value remaining unchanged at least in all slice headers of one picture, was a significant advancement over existing technology.

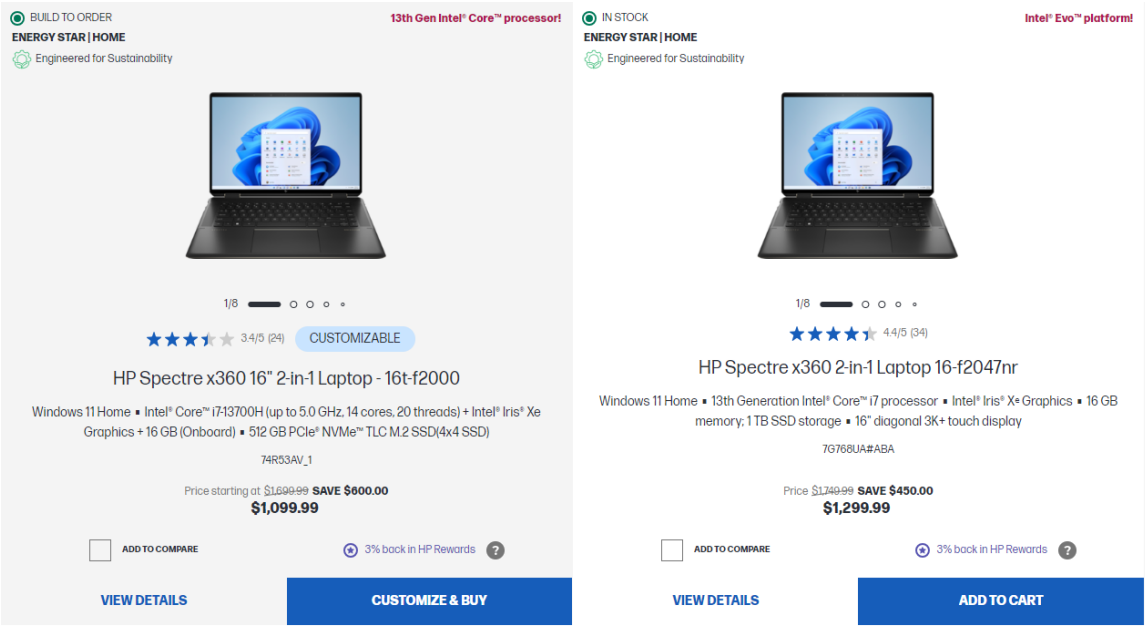
102. The novel solution of the ’818 Patent, including recognizing parameter values in a sequence parameter set for a sequence of pictures, parameter values in a picture parameter set for a picture, and at least one picture parameter value in a slice header, the picture parameter value remaining unchanged at least in all slice headers of one picture, was not well-understood, routine, or conventional, nor was it simply comprised of well-understood, routine, and conventional activities previously known to the industry. Furthermore, the ordered combination of elements, including recognizing parameter values in a sequence parameter set for a sequence of pictures, parameter values in a picture parameter set for a picture, and at least one picture parameter value in a slice header, the picture parameter value remaining unchanged at least in all slice headers of one picture, was not well-understood, routine, or conventional.

103. On information and belief, HP directly infringes at least Claim 6 of the ’818 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of the HP Accused Products.

104. Because for example Claim 6 of the ’818 Patent is essential to the H.264 and H.265 Standards, the HP Accused Products’ incorporation of the H.264 and H.265 Standards infringes at least Claim 6 of the ’818 Patent.

105. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that decode H.264 and H.265-compliant video. An example of such an

HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor.



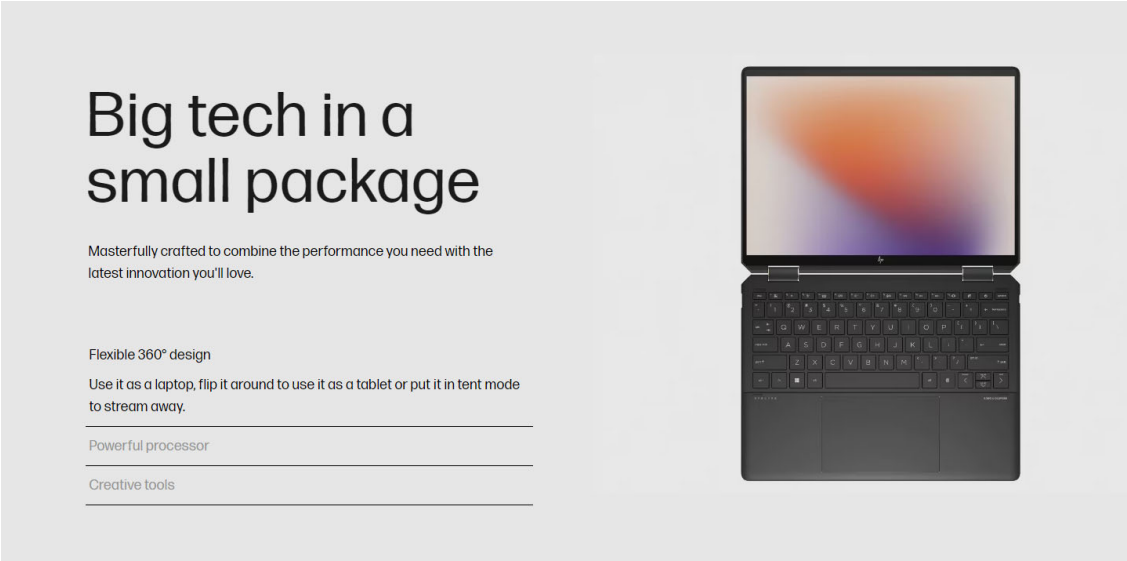
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

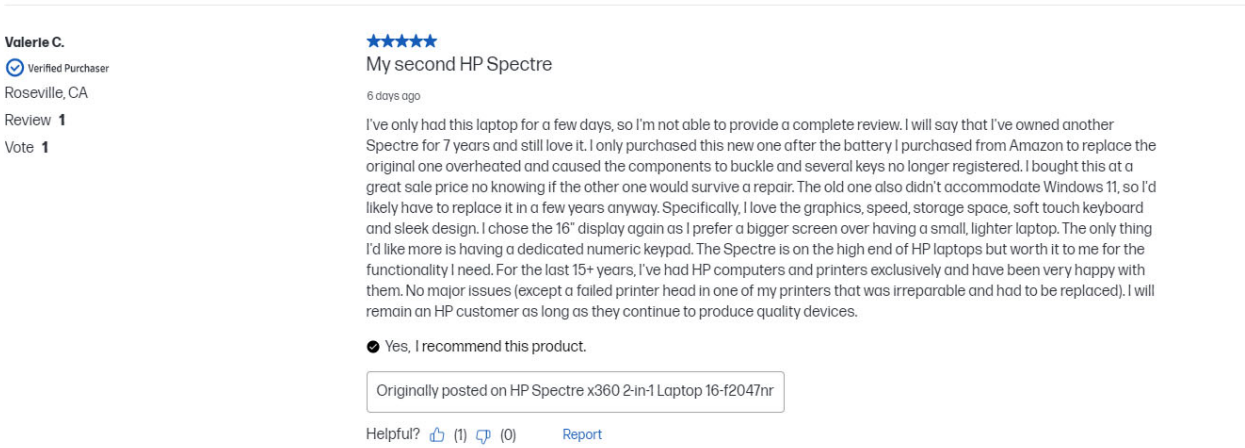
Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

106. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 6 of the ’818 Patent by advertising the products’ ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

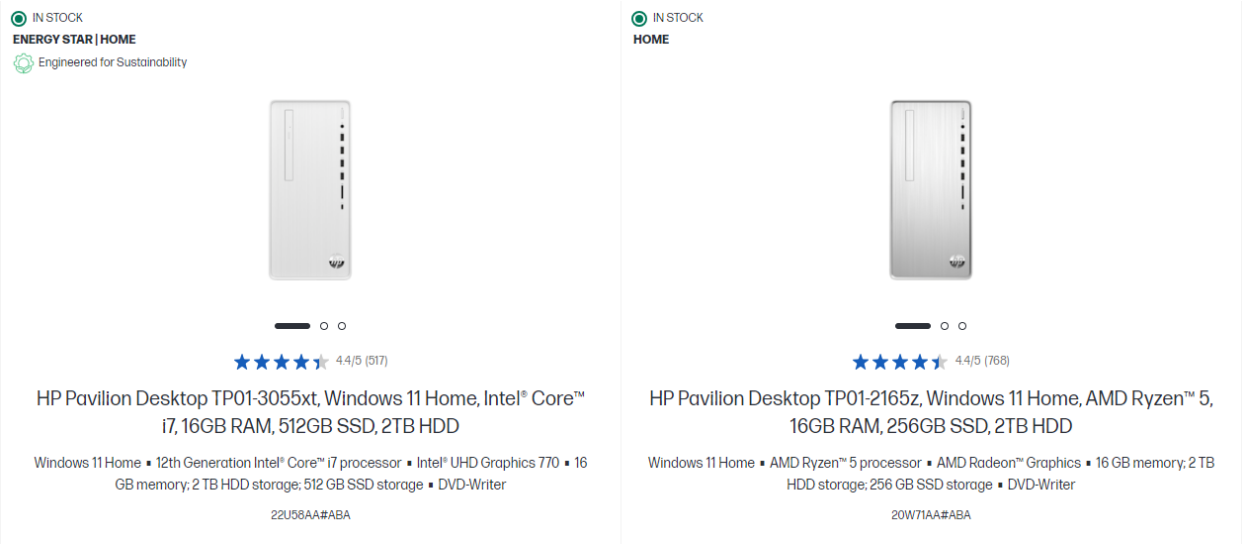
107. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:



Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

108. As another example of HP’s infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.264 and H.265-compliant video. An

example of such an HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor, and is capable of decoding H.264 and H.265-compliant video.



Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

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Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
Intel® UHD Graphics for 11th Gen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Source:

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

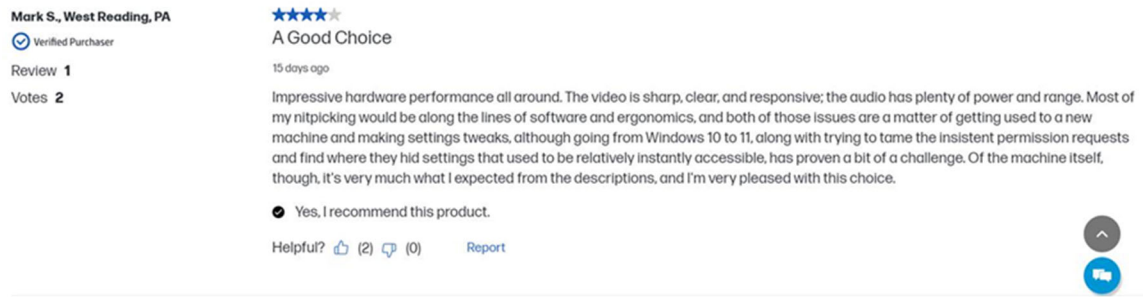
11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	• CBR • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR

Compare	MODEL	H265/HEVC DECODE (All)	H265/HEVC ENCODE (All)
+	AMD Radeon™ RX 7900 XTX	Yes	Yes
+	AMD Radeon™ RX 7900 XT	Yes	Yes
+	AMD Radeon™ RX 7900 GRE	Yes	Yes
+	AMD Radeon™ RX 7600	Yes	Yes
+	AMD Radeon™ RX 7600M XT	Yes	Yes
+	AMD Radeon™ RX 7600M	Yes	Yes
+	AMD Radeon™ RX 7700S	Yes	Yes
+	AMD Radeon™ RX 7600S	Yes	Yes

109. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and record video:


Mark S., West Reading, PA
Verified Purchaser
Review 1
Votes 2

A Good Choice

15 days ago

Impressive hardware performance all around. The video is sharp, clear, and responsive; the audio has plenty of power and range. Most of my nitpicking would be along the lines of software and ergonomics, and both of those issues are a matter of getting used to a new machine and making settings tweaks, although going from Windows 10 to 11, along with trying to tame the insistent permission requests and find where they hid settings that used to be relatively instantly accessible, has proven a bit of a challenge. Of the machine itself, though, it's very much what I expected from the descriptions, and I'm very pleased with this choice.

Yes, I recommend this product.

Helpful? (2) (0) Report

110. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 6 of the ’818 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such article’s importation into the United States, in a manner that infringes at least Claim 6 of the ’818 Patent.

111. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe at least Claim 6 of the ’818 Patent. On information and belief, HP also advertises other HP products that infringe at least Claim 6 of the ’818 Patent on its website for consumer purchase.

112. On information and belief, HP was aware of the ’818 Patent or acted with willful blindness as to the existence of the ’818 Patent at least as a result of the filing and service of this complaint. Nokia informed HP that it was infringing the ’818 Patent when Nokia disclosed the ’818 Patent among a patent list and corresponding list of infringing HP products provided to HP in July 2020.

113. On information and belief, HP was aware of the ’818 Patent or acted with willful blindness as to the existence of the ’818 Patent at least as a result of the filing and service of this complaint. Moreover, Nokia informed HP that it was infringing the ’818 Patent when Nokia provided a claim chart and disclosed the ’818 Patent among a patent list and corresponding list of infringing HP products in July 2020. Nokia provided an additional claim chart in July 2021 and again including the disclosed the ’818 Patent among a patent list and corresponding list of infringing HP products in August 2021.

114. On information and belief, HP contributes to the infringement of at least Claim 6 of the ’818 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

115. Claim charts that apply Claim 6 of the ’818 Patent to the HP Accused Products is attached as Exhibits 14A and 14B. The H.264 and H.265 Standards referenced in the claim charts can be found in Exhibits 1 and 2.

D. U.S. Patent No. 10,536,714 (“the ’714 Patent”)

116. Nokia owns by assignment the entire right, title, and interest in and to the ’714 Patent entitled “Method for Coding and an apparatus” issued on January 14, 2020, to inventors Mehmet Oguz Bici, Jani Lainema, and Kemal Ugur. The ’714 Patent issued from U.S. Patent Application No. 16/356,733, filed on March 18, 2019, which is a continuation of application No. 15/681,725, filed on August 21, 2017 (now U.S. Patent No. 10,237,574), which is a continuation of application No. 15/426,822, filed on February 7, 2017 (now U.S. Pat. No. 9,743,105), which is a continuation of application No. 13/666,680, filed on November 1, 2012 (now U.S. Patent No. 9,571,833), which claims priority to U.S. Provisional Application No. 61/555,703, filed on November 4, 2011. The ’714 Patent expires on November 1, 2032. A true and correct copy of the ’714 Patent is attached as Exhibit 6.

117. Per 19 CFR § 210.12(a)(9)(vi), the following is a non-technical description of the ’714 Patent.

118. The ’714 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’714 Patent provides improvements over conventional video coding motion compensation techniques that result in substantial benefits to video compression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

119. Encoders compress video into a representation suitable for storage or transmission. ’714 Patent at 1:32-36. Decoders can decompress the compressed representation into viewable form. *Id*. As described in the ’714 Patent, decoders reconstruct output video by applying a

prediction mechanism "using the motion or spatial information … stored in the compressed representation of the image" and prediction error decoding "the inverse operation of the prediction error coding to recover the quantized prediction error signal in the spatial domain." *Id*. at 2:4-12. The decoder "may also apply additional filtering processes in order to improve the quality of the output video." *Id*. at 2:16-18.

120. Typical encoders encode video information in two phases. In the first phase, pixel values can be predicted, for example, by motion compensation mechanisms, which involve finding and indicating an area in one of the previously coded video frames that corresponds closely to the block being coded. *Id*. at 1:43-49. Additionally, pixel values can be predicted via by spatial mechanisms, which involve using the pixel values around the block to be coded in a specified manner. *Id*. at 1:49-52. The second phase involves coding the prediction error (*i.e.*, the difference between the predicted block of pixels and the original block of pixels), which involves transforming the difference in pixel values using a specified transform (*e.g.*, a Discrete Cosine Transform (DCT) or a variant thereof), quantizing the coefficients, and entropy coding the quantized coefficients. *Id*. at 1:58-64.

121. As described in the '714 Patent, motion information is indicated by motion vectors associated with each motion compensated image block. *Id*. at 2:59-65. One method used by conventional systems to create the predicted motion vectors was to calculate them in a predefined way, for example by calculating the median of the motion vectors of the adjacent blocks. *Id*. at 2:67-3:4. Another method used by conventional systems was to generate a list or a set of candidate predictions from blocks in the current frame and/or co-located or other blocks in temporal reference pictures and signaling the chosen candidate as the motion vector prediction. *Id*. at 3:5-9.

122. Prior to the ’714 Patent, one significant problem was that after a list of the motion vector prediction candidates was generated, some of the motion vector prediction candidates may have the same motion information, which created redundancy. *Id*. at 3:66-4:3. Another problem arose when temporal motion vector prediction information was unavailable, for example, due to loss of a reference frame. *Id*. at 4:3-7. Conventional technology could not address whether the temporal motion vector prediction candidates in the list should be removed. *Id*. Therefore, methods that determined the inclusion or removal of motion vector prediction candidates based on comparing motion information with temporal motion vector prediction resulted in the false assignment of motion vector prediction candidates, which caused degradation in picture quality. *Id*. at 4:7-15.

123. The ’714 Patent overcame these technical challenges in the prior systems by inventing a method that recognized that the size of the motion vector prediction candidates list could be reduced and associated signaling cost could be reduced by eliminating motion vector prediction candidates based on the geometry of the region being predicted and by using a limited number of candidate comparisons. *Id*. at 4:19-39. The ’714 Patent employs the unconventional solution of obtaining spatial candidates from the motion information of spatial neighbor blocks, for example, and performing a limited number of motion information comparisons between candidate pairs to remove the redundant candidates rather than comparing every available candidate pair, which reduces complexity and redundancy. *Id*. at 4:19-39.

124. The ’714 Patent therefore provides specific technological improvements to the functionality and capabilities of video decoding and encoding technologies that result in reduced complexity and improved prediction accuracy, which in turn reduces the information to be transmitted and received. *Id*. at 4:20-23, 8:24-27.

125. Conventional technology prior to the ’714 Patent was not capable of selecting spatial motion vector prediction candidates based on a location of the block associated with a first spatial motion vector prediction candidate or determining to include or exclude the first spatial motion vector prediction candidate in the motion vector prediction list based on comparing motion information of the first spatial motion vector prediction candidate with motion information of a limited number of other spatial motion vector prediction candidates without making a comparison of each pair from the set of spatial motion vector prediction candidates.

126. The ’714 Patent recognizes and solves these specific technological problems that plagued the conventional technology at the time. The ’714 Patent’s ability to determine spatial motion vector prediction candidates based on a location of the block associated with a first spatial motion vector prediction candidate and ability to determine to include or exclude the first spatial motion vector prediction candidate in the motion vector prediction list based on comparing motion information of the first spatial motion vector prediction candidate with motion information of a limited number of other spatial motion vector prediction candidates without making a comparison of each pair from the set of spatial motion vector prediction candidates was a significant advancement over existing technology.

127. The novel solution of the ’714 Patent, including determining spatial motion vector prediction candidates based on a location of the block associated with a first spatial motion vector prediction candidate and determining to include or exclude the first spatial motion vector prediction candidate in the motion vector prediction list based on comparing motion information of the first spatial motion vector prediction candidate with motion information of a limited number of other spatial motion vector prediction candidates without making a comparison of each pair from the set of spatial motion vector prediction candidates, was not well-understood, routine, or

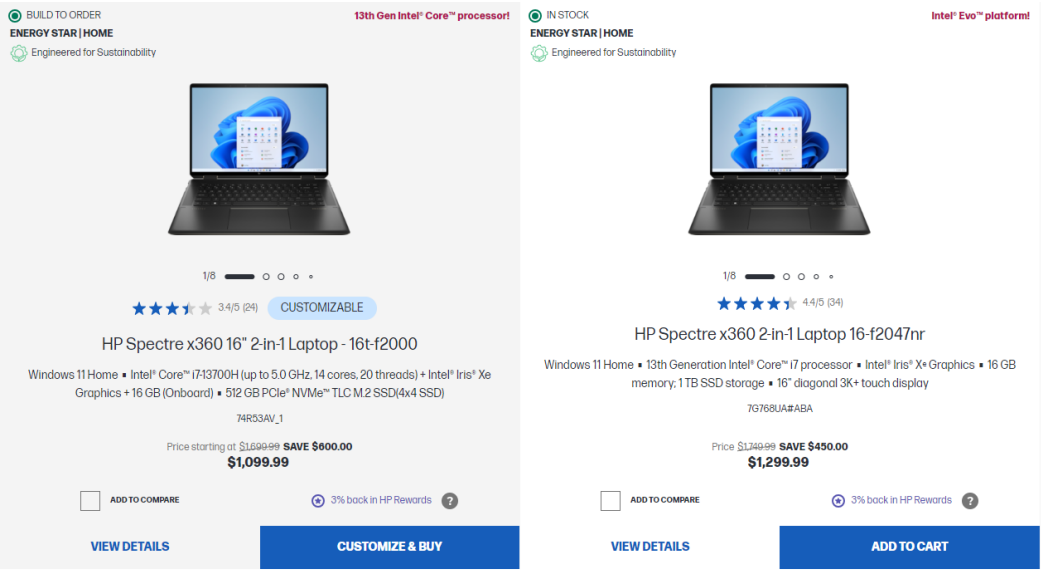
conventional, nor was it simply comprised of well-understood, routine, and conventional activities previously known to the industry. Furthermore, the ordered combination of elements, including determining spatial motion vector prediction candidates based on a location of the block associated with a first spatial motion vector prediction candidate and determining to include or exclude the first spatial motion vector prediction candidate in the motion vector prediction list based on comparing motion information of the first spatial motion vector prediction candidate with motion information of a limited number of other spatial motion vector prediction candidates without making a comparison of each pair from the set of spatial motion vector prediction candidates, was not well-understood, routine, or conventional.

128. On information and belief, the Accused Products that are sold for importation, imported, and/or sold within the United States after importation by HP infringe at least Claim 9 of the ’714 Patent, either literally or under the doctrine of equivalents.

129. On information and belief, HP directly infringes Claim 9 of the ’714 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of the HP Accused Products.

130. Because the Claim 9 of the ’714 Patent is essential to the H.265 Standard, the HP Accused Products’ incorporation of the H.265 Standard infringes at least Claim 9 of the ’714 Patent.

131. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that decode H.265-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor and is capable of decoding H.265-compliant video.



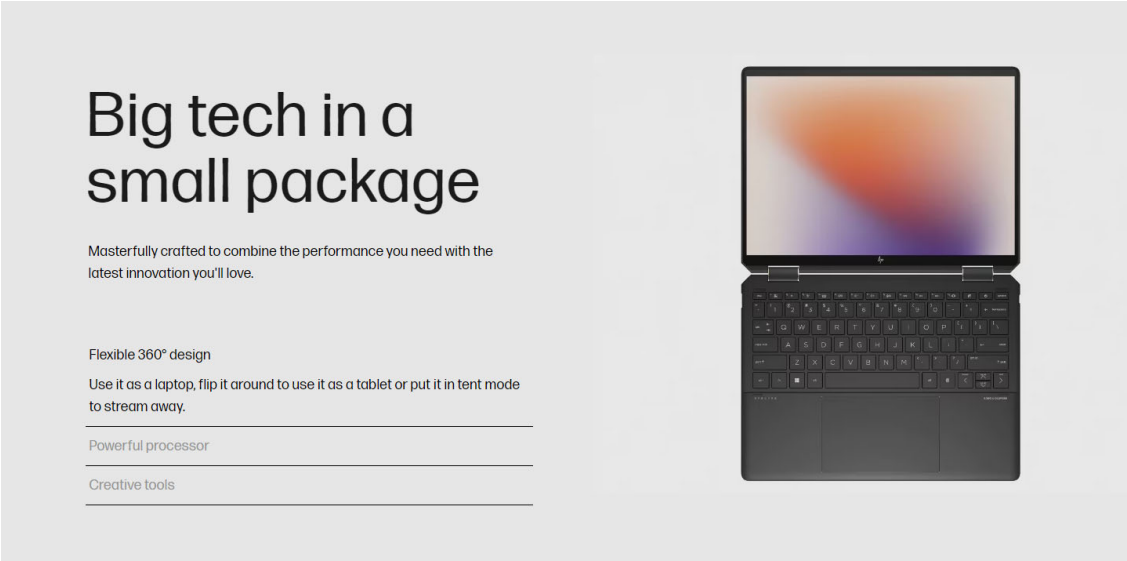
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

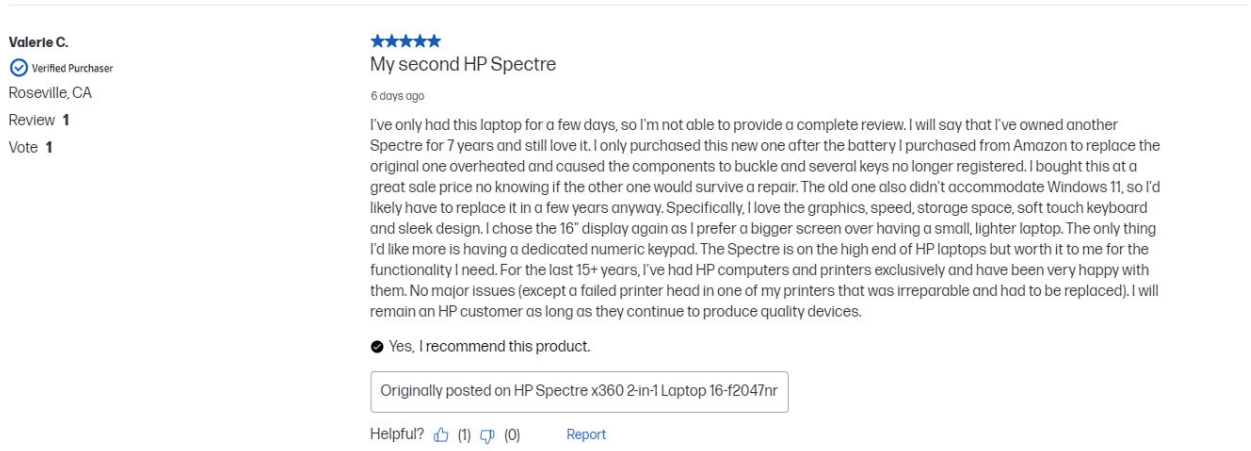
Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

132. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 9 of the ’714 Patent by advertising the products’ ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

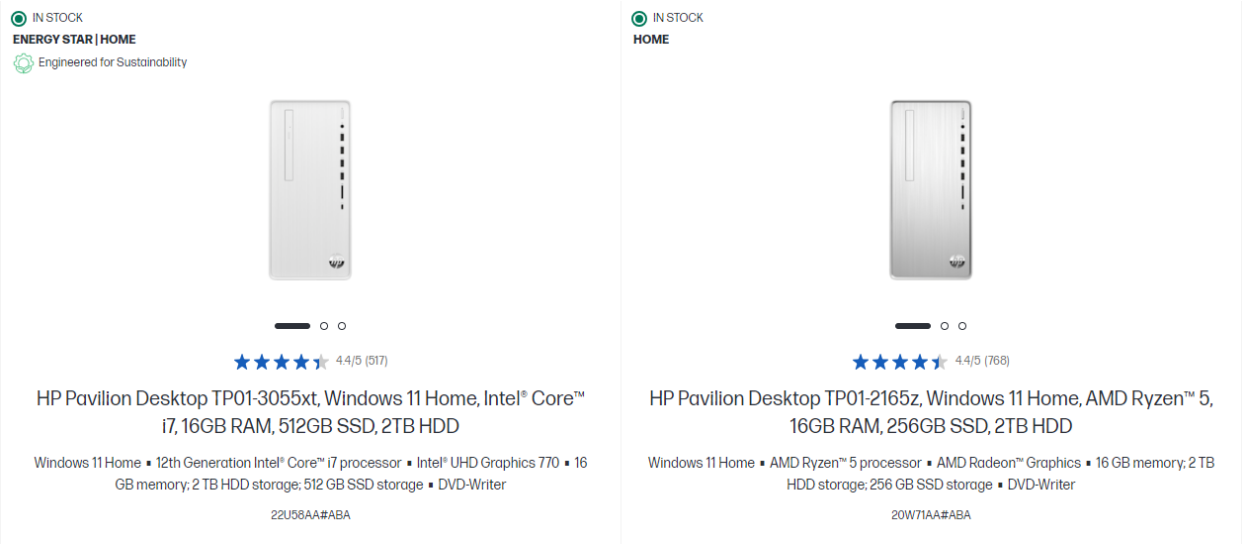
133. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:



Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

134. As another example of HP’s infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.265-compliant video. An example of such

an HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor, and is capable of decoding H.265-compliant video.



Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
Intel® UHD Graphics for 11th Gen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

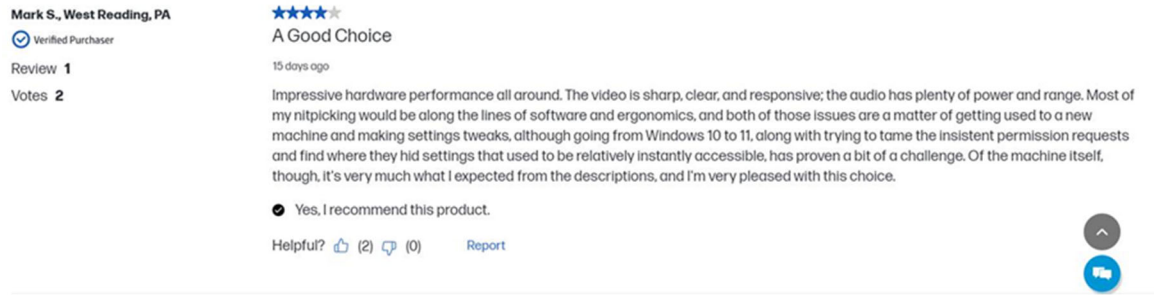
HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	• CBR • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL	H265/HEVC DECODE (All)	H265/HEVC ENCODE (All)
+	AMD Radeon™ RX 7900 XTX	Yes	Yes
+	AMD Radeon™ RX 7900 XT	Yes	Yes
+	AMD Radeon™ RX 7900 GRE	Yes	Yes
+	AMD Radeon™ RX 7600	Yes	Yes
+	AMD Radeon™ RX 7600M XT	Yes	Yes
+	AMD Radeon™ RX 7600M	Yes	Yes
+	AMD Radeon™ RX 7700S	Yes	Yes
+	AMD Radeon™ RX 7600S	Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

135. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and record video:



Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

136. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 9 of the ’714 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such

article's importation into the United States, in a manner that infringes at least Claim 9 of the '714 Patent.

137. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe the '714 Patent. On information and belief, HP also advertises other HP products that infringe the '714 Patent on its website for consumer purchase.

138. On information and belief, HP was aware of the '714 Patent or acted with willful blindness as to the existence of the '714 Patent at least as a result of the filing and service of this complaint. Nokia informed HP that it was infringing the '714 Patent in at least July 2021, when Nokia provided a claim chart for a related patent. Nokia additionally provided a patent list, including a related patent, and a corresponding list of infringing products in August 2021.

139. On information and belief, HP contributes to the infringement of at least Claim 9 of the '714 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

140. A claim chart that applies Claim 9 of the '714 Patent to the HP Accused Products is attached as Exhibit 15. The H.265 Standard referenced in this claim chart for the claims can be found in Exhibit 2.

E. U.S. Patent No. 11,805,267 ("the '267 Patent")

141. Nokia owns by assignment the entire right, title, and interest in and to the '267 Patent entitled "Motion Prediction in Video Coding" issued on October 31, 2023, to inventors Kemal Ugar, Jani Lainema, and Antti Hallapuro. The '267 Patent issued from U.S. Patent

Application No. 21/281,869, filed on May 24, 2021. The ’267 Patent is a continuation of application No. 16/729,974, filed on Dec. 30, 2019 (now Pat. No. 11,019,354), which is a continuation of application No. 15/876,495, filed on Jan. 22, 2018 (now Pat. No. 10,523,960), which is a continuation of application No. 15/490,469, filed on Apr. 18, 2017, (now Pat. No. 9,877,037), which is a continuation of application No. 15/250,124, filed on Aug. 29, 2016, (now Pat. No. 9,628,816), which is a continuation of application No. 13/344,893, filed on Jan. 6, 2012, (now Pat. No. 0,432,693), which claims priority to U.S. Provisional Application No. 61/430,694, filed on Jan. 7, 2011. The ’267 Patent expires on January 6, 2032. A true and correct copy of the ’267 Patent is attached as Exhibit 11.

142. The ’267 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’267 Patent provides improvements over conventional video coding techniques that result in substantial benefits to video compression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

143. Encoders compress video into a representation suitable for storage or transmission. ’267 Patent at 1:26-27. Decoders can decompress the compressed video representation into viewable form. *Id* at 1:28-29. One compression technique used to reduce the size of an encoded bitstream is called “Motion Compensated Prediction (MCP).” *Id*. at 2:20-22. In MCP, a prediction for a current frame is formed using a previously coded frame or using multiple previously coded frames. *Id* at 2:22-23. An example of a frame that is predicted using multiple previously coded frames is called a “B-picture.” B-pictures are bi-predicted (or bi-directional prediction) pictures which use two other pictures as reference pictures, or two prediction blocks within one reference picture. *Id*. at 2:43-45.

144. As described in the ’267 Patent, in bi-prediction, the prediction signal of the block may be formed by averaging two motion compensated prediction blocks, followed by either up or down rounding, which may introduce rounding errors. *Id*. at 3:51-55.

145. Prior to the ’267 Patent, one significant problem was that the accumulation of rounding errors in bi-directional prediction degraded the coding efficiency. *Id*. at 3:56-57. Conventional technology attempted to remove or decrease this rounding error accumulation by signaling whether rounding up or rounding down was used or, alternatively, by alternating the usage of the rounding up and rounding down for each frame. *Id* at 3:57-63. However, such prior methods increased the complexity of the process, as two separate code branches were required and the motion estimation routines in the encoder had to be doubled for both cases of rounding and truncating. *Id*. at 4:21-25.

146. The ’267 Patent overcame these technical challenges in the prior systems by inventing a method of maintaining the prediction signals at a higher precision during the prediction calculation and then reducing the precision after the two or more prediction signals have been combined with each other. *Id*. at 4:29-35. The ’267 Patent employs the unconventional solution of maintaining a higher accuracy until the prediction signals have been combined to obtain the bi-prediction or multi-prediction signal, which eliminates the need for including a rounding direction indicator in the bitstream or the added complexity of alternating the rounding directions between frames. *Id*. at 4:36-43, 6:51-57. With the invention of the ’267 Patent, the encoder can transmit residual data based on the difference between the combined prediction and the block of pixels, and the decoder can reconstruct the block of pixels based on the combined prediction. *Id*. at 14:51-59, 15:14-24, 16:14-35.

147. The ’267 Patent therefore provides a specific technological improvement to the functionality and capabilities of video coding technology that results in increased efficiency and significant reduction in the information to be transmitted and received. *Id*. at 7:31-38.

148. Conventional technology prior to the ’267 Patent was not capable of reducing the accumulation of rounding errors in bi-prediction or multi-prediction without signaling the rounding offset or using different methods for rounding for different frames. *Id*. at 6:51-57.

149. The ’267 Patent recognizes and solves these specific technological problems with the conventional technology at the time. The ’267 Patent’s ability to obtain a first prediction and a second prediction, each having a precision which is higher than the precision of the reference pixel values, and after combining the first prediction and the second prediction, decreasing the precision of said combined prediction by shifting bits of the combined prediction to the right such that the residual data in the bitstream is based on the difference between the combined prediction and the block of pixels, and such that the combined prediction is used by the decoder to reconstruct the block of pixels, was a significant advancement over existing technology.

150. The novel solution of the ’267 Patent, including obtaining a first prediction and a second prediction, each having a precision which is higher than the precision of the reference pixel values, and after adding the first prediction and the second prediction with a rounding value, decreasing the precision of said combined prediction by shifting bits of the combined prediction to the right such that the residual data in the bitstream is based on the difference between the combined prediction and the block of pixels, and such that the combined prediction is used by the decoder to reconstruct the block of pixels, was not well-understood, routine, or conventional, nor was it simply comprised of well-understood, routine, and conventional activities previously known to the industry. Furthermore, the ordered combination of elements, including obtaining a

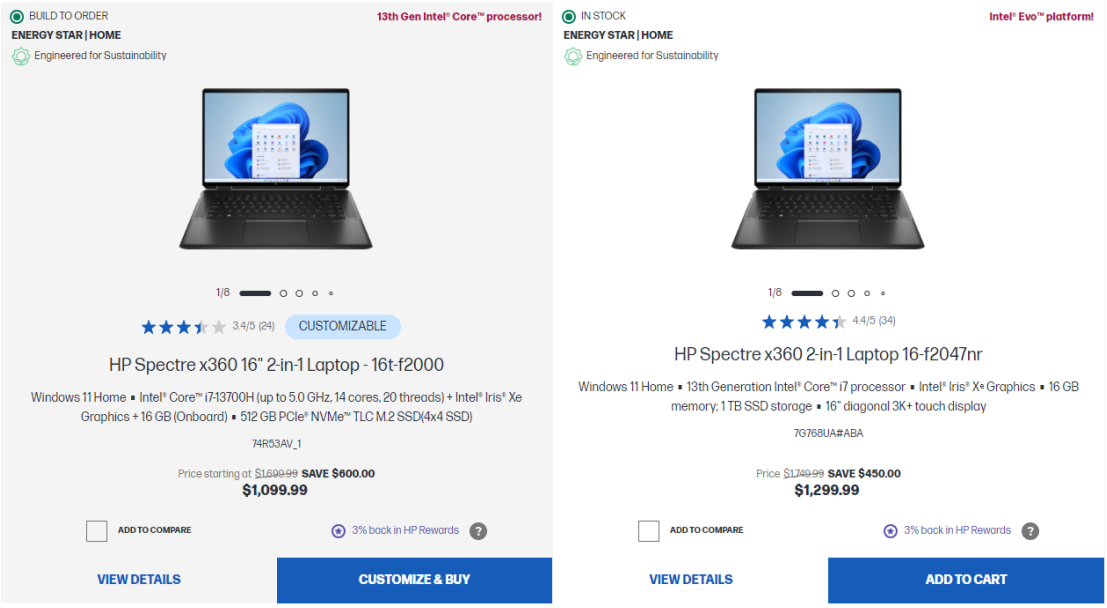
first prediction and a second prediction, each having a precision which is higher than the precision of the reference pixel values, and after adding the first prediction and the second prediction with a rounding value, decreasing the precision of said combined prediction by shifting bits of the combined prediction to the right such that the residual data in the bitstream is based on the difference between the combined prediction and the block of pixels, and such that the combined prediction is used by the decoder to reconstruct the block of pixels, was not well-understood, routine, or conventional.

151. On information and belief, the Accused Products that are sold for importation, imported, and/or sold within the United States after importation by HP infringe at least Claim 19 of the ’267 Patent, either literally or under the doctrine of equivalents.

152. On information and belief, HP directly infringes one or more claims of the ’267 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of the HP Accused Products.

153. Because Claim 19 of the ’267 Patent is essential to the H.265 Standard, the HP Accused Products’ incorporation of the H.265 Standard infringes at least Claim 19 of the ’267 Patent.

154. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that decode H.265-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor.



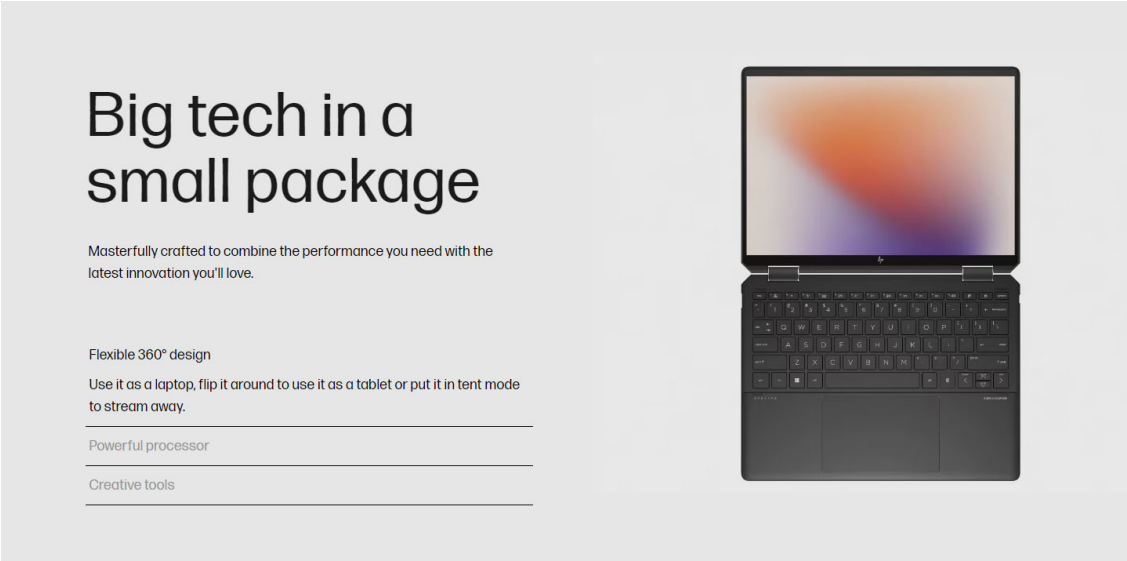
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

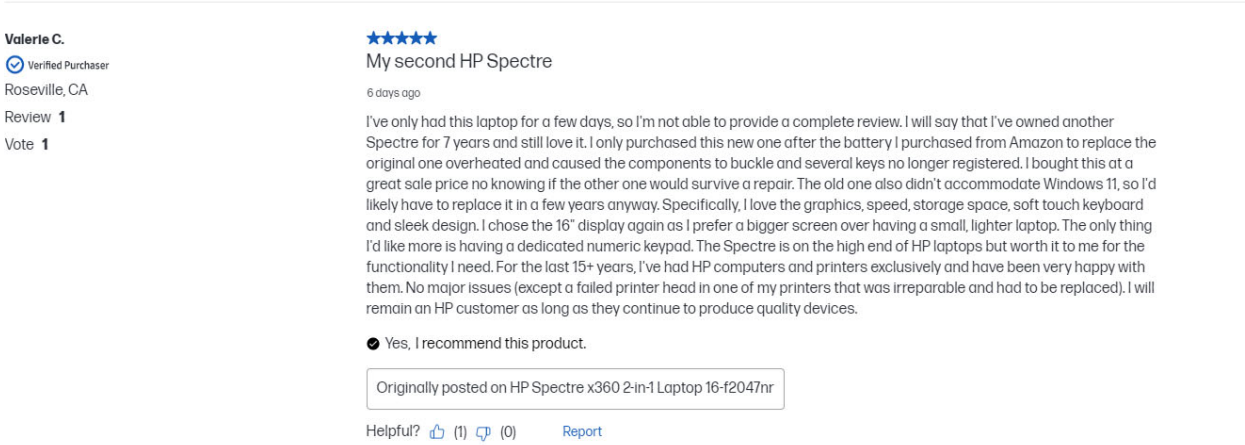
Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

155. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 19 of the ’267 Patent by advertising the products’ ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

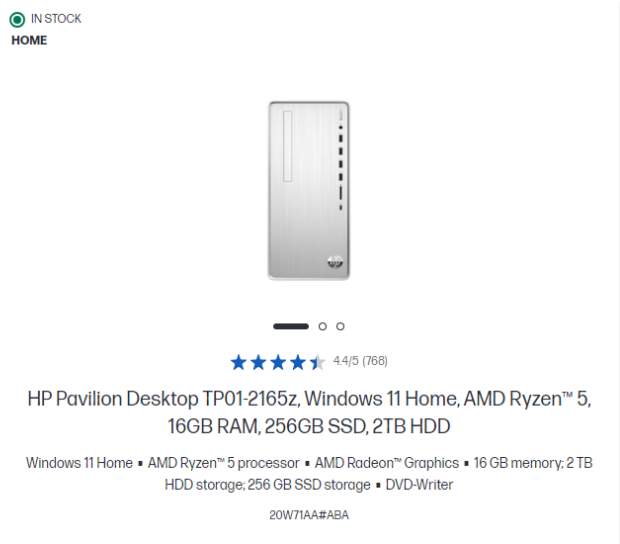
156. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:



Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

157. As another example of HP’s infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.265-compliant video. An example of an

HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor.



Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
Intel® UHD Graphics for 11th Gen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

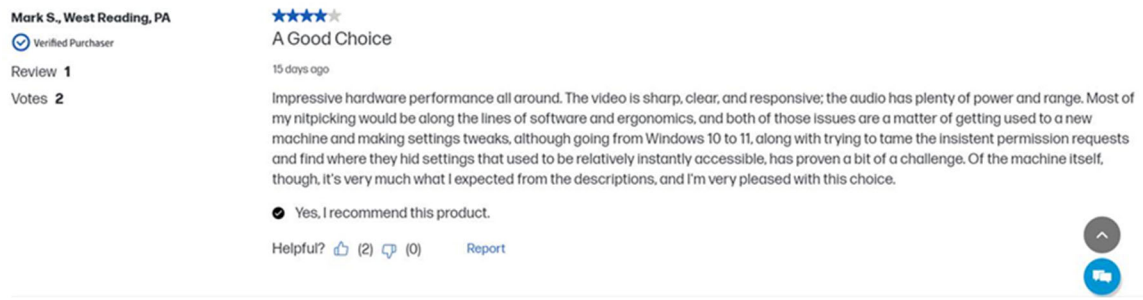
HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	• CBR • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL		4K H264 DECODE All	4K H264 ENCODE All
☐	AMD Radeon™ RX 7900 XTX		Yes	Yes
☐	AMD Radeon™ RX 7900 XT		Yes	Yes
☐	AMD Radeon™ RX 7900 GRE		Yes	Yes
☐	AMD Radeon™ RX 7600		Yes	Yes
☐	AMD Radeon™ RX 7600M XT		Yes	Yes
☐	AMD Radeon™ RX 7600M		Yes	Yes
☐	AMD Radeon™ RX 7700S		Yes	Yes
☐	AMD Radeon™ RX 7600S		Yes	Yes
☐	AMD Radeon™ RX 6950 XT		Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

158. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream video:



Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

159. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 19 of the ’267 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such

article's importation into the United States, in a manner that infringes at least Claim 19 of the '267 Patent.

160. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe at least Claim 19 of the '267 Patent. On information and belief, HP also advertises other HP products that infringe at least Claim 19 of the '267 Patent on its website for consumer purchase.

161. On information and belief, HP was aware of the '267 Patent or acted with willful blindness as to the existence of the '267 Patent at least as a result of the filing and service of this complaint. Moreover, Nokia informed HP that it was infringing the '267 Patent when Nokia provided a claim chart for a related patent in July 2021 and disclosed related patents among a patent list and corresponding list of infringing HP products in August 2021.

162. On information and belief, HP contributes to the infringement of one or more claims of the '267 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

163. A claim chart that applies Claim 19 of the '267 Patent to the HP Accused Products is attached as Exhibit 22. The H.265 Standard referenced in this claim chart can be found in Exhibit 2.

F. U.S. Patent No. 8,077,991 ("the '991 Patent")

164. Nokia owns by assignment the entire right, title, and interest in and to the '991 Patent entitled "Spatially Enhanced Transform Coding" issued on December 13, 2011, to inventor

Jani Lainema. The ’991 Patent issued from U.S. Patent Application No. 12/101,019, filed on April10, 2008. It therefore claims priority to April 10, 2008. The ’991 Patent expires on October 12, 2030. A true and correct copy of the ’991 Patent is attached as Exhibit 7.

165. The ’991 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’991 Patent provides improvements over conventional video coding techniques that result in substantial benefits to video decompression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

166. As described in the ’991 Patent, typical decoders reconstruct video by applying prediction mechanisms and prediction error decoding. ’991 Patent at 1:49-54. For example, the decoder “sums up the prediction and prediction error signals (i.e., the pixel values) to form the output video frame.” *Id*. at 1: 56-59. Typical encoders compress video information in two phases. In the first phase, pixel values can be predicted, for example, by motion compensation mechanisms, which involve finding and indicating an area in one of the previously coded video frames that corresponds closely to the block being coded. *Id*. at 1:29-34. Additionally, pixel values can be predicted via by spatial mechanisms, which involve using the pixel values around the block to be coded in a specified manner. *Id*. at 1:35-37. The second phase involves coding the prediction error (*i.e.*, the difference between the predicted block of pixels and the original block of pixels), which involves transforming the difference in pixel values using a specified transform (*e.g.*, a Discrete Cosine Transform (DCT) or a variant thereof), quantizing the coefficients, and entropy coding the quantized coefficients. *Id*. at 1:37-44.

167. Prior to the ’991 Patent, one significant problem was that transform coding was only efficient under certain circumstances. More specifically, when the prediction error values

were less correlated with one another, the transform coding performance deteriorated and caused suboptimal performance. *Id*. at 2:29-38.

168. The ’991 Patent overcame these technical challenges in the prior systems by inventing a novel method of using both transform coding and spatial coding to construct the prediction error signal. *Id*. at 2:64-3:2. The ’991 Patent employs the unconventional solution of performing both transform coding and spatial coding to allow for the efficient spatial representation of those components of the prediction error signal of the same image block that are not well correlated with the transform basis functions (such as certain types of sensor noise, high frequency texture and edge information). *Id*. at 3:18-21, 3:6-12.

169. The ’991 Patent therefore provides a specific technological improvement to the functionality and capabilities of video coding technology that results in increased efficiency and video quality. *Id*. at 3:35-37. For instance, the ’991 Patent describes an example where four scalar values are to be coded, in which the invention of the ’991 Patent results in compression efficiency improvement, as the signal is represented by a single transform coefficient and a single spatial sample instead of four transform coefficients. *Id*. at 4:44-58.

170. Conventional technology prior to the ’991 Patent was not capable of using both transform coding and spatial coding to construct the prediction error signal to allow for the efficient spatial representation of those components of the prediction error signal of the same image block that are not well correlated with the transform basis functions.

171. The ’991 Patent recognizes and solves these specific technological problems that plagued the conventional technology at the time. The ’991 Patent’s techniques for performing transform coding to the difference signal, performing spatial coding to the difference signal, and joining the two representations to form a coded prediction error signal was a significant

advancement over existing technology. The ’991 Patent’s techniques for receiving a coded prediction error signal including transform coefficients and spatial samples, decoding the transformed coefficients into decoded transform information, decoding the plurality of spatial samples into decoded spatial information, and adding the decoded transform information, the decoded spatial information, and a reconstructed prediction of a block of data, thereby forming a decoded representation of the block of data are likewise a significant advancement over existing technology.

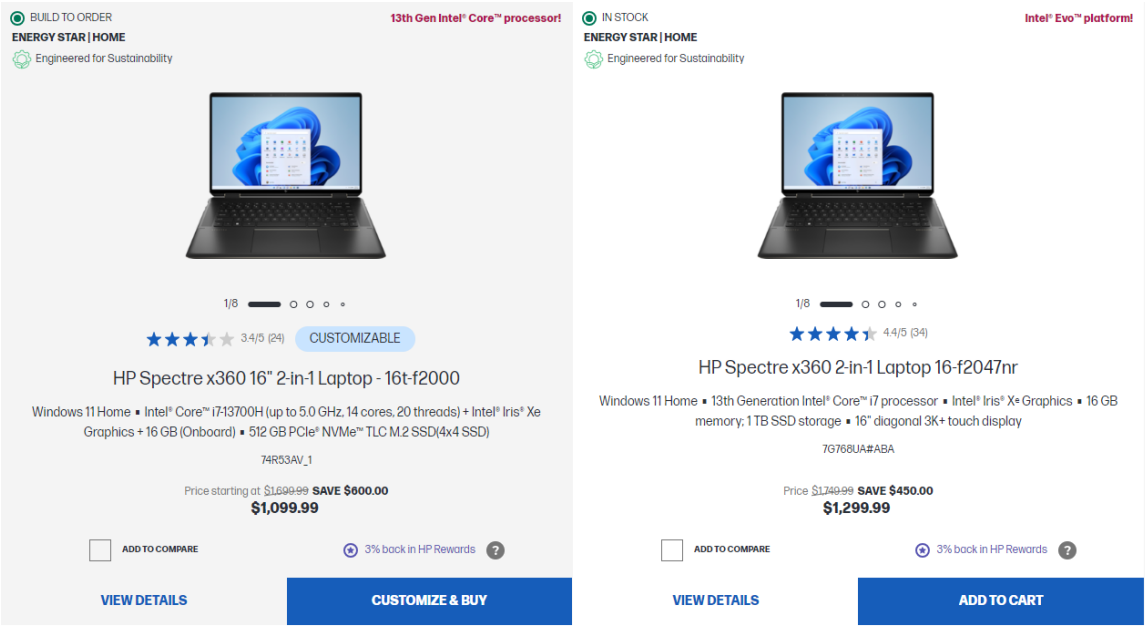
172. The novel solution of the ’991 Patent, including receiving a coded prediction error signal, decoding the plurality of transformed coefficient, decoding the plurality of spatial samples, and adding the decoded transform information, the decoded spatial information and a reconstructed prediction of the block of data, was not well-understood, routine, or conventional, nor was it simply comprised of well-understood, routine, and conventional activities previously known to the industry. Furthermore, the ordered combination of elements, including performing transform coding to the difference signal, performing spatial coding to the difference signal, and joining the two representations to form a coded prediction error signal, was not well-understood, routine, or conventional.

173. On information and belief, the Accused Products that are sold for importation, imported, and/or sold within the United States after importation by HP infringe at least Claim 22 of the ’991 Patent, either literally or under the doctrine of equivalents.

174. On information and belief, HP directly infringes one or more claims of the ’991 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of the HP Accused Products.

175. Because Claim 22 of the ’991 Patent is essential to the H.265 Standard, the HP Accused Products’ incorporation of the H.265 Standard infringes at least Claim 22 of the ’991 Patent.

176. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that or decode H.265-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor and is capable of decoding H.265-compliant video.



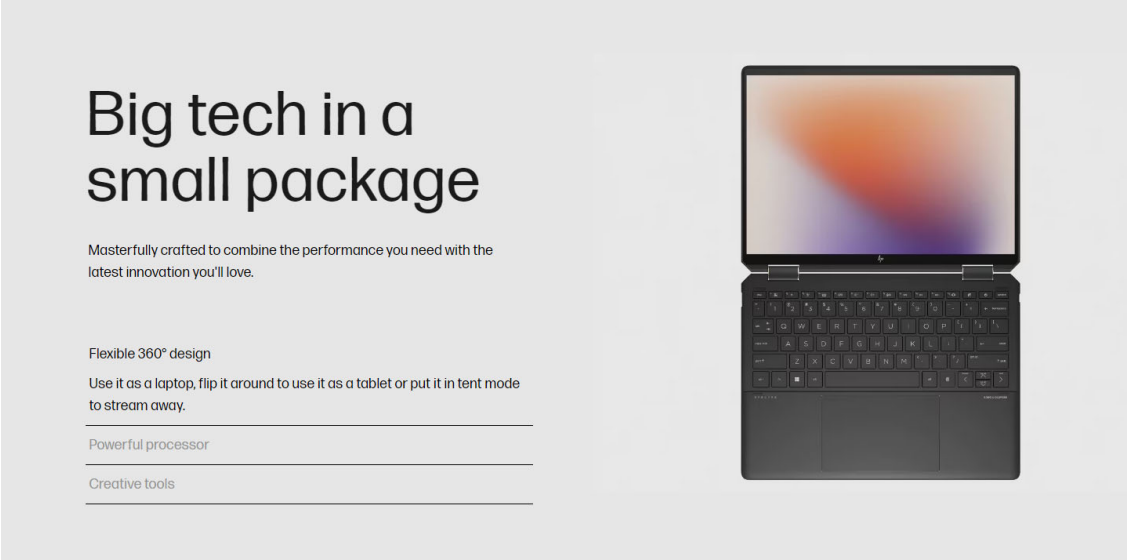
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

177. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 22 of the '991 Patent by advertising the products' ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

178. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:

Valerie C.
Verified Purchaser
Roseville, CA
Review **1**
Vote **1**

★★★★★
My second HP Spectre
6 days ago

I've only had this laptop for a few days, so I'm not able to provide a complete review. I will say that I've owned another Spectre for 7 years and still love it. I only purchased this new one after the battery I purchased from Amazon to replace the original one overheated and caused the components to buckle and several keys no longer registered. I bought this at a great sale price no knowing if the other one would survive a repair. The old one also didn't accommodate Windows 11, so I'd likely have to replace it in a few years anyway. Specifically, I love the graphics, speed, storage space, soft touch keyboard and sleek design. I chose the 16" display again as I prefer a bigger screen over having a small, lighter laptop. The only thing I'd like more is having a dedicated numeric keypad. The Spectre is on the high end of HP laptops but worth it to me for the functionality I need. For the last 15+ years, I've had HP computers and printers exclusively and have been very happy with them. No major issues (except a failed printer head in one of my printers that was irreparable and had to be replaced). I will remain an HP customer as long as they continue to produce quality devices.

Yes, I recommend this product.

Originally posted on HP Spectre x360 2-in-1 Laptop 16-f2047nr

Helpful? (1) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

179. As another example of HP's infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.265-compliant video. An example of such an HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor, and is capable of decoding H.265-compliant video.

IN STOCK
ENERGY STAR | HOME
Engineered for Sustainability

4.4/5 (517)

HP Pavilion Desktop TP01-3055xt, Windows 11 Home, Intel® Core™ i7, 16GB RAM, 512GB SSD, 2TB HDD

Windows 11 Home ▪ 12th Generation Intel® Core™ i7 processor ▪ Intel® UHD Graphics 770 ▪ 16 GB memory; 2 TB HDD storage; 512 GB SSD storage ▪ DVD-Writer

22U58AA#ABA

IN STOCK
HOME

4.4/5 (768)

HP Pavilion Desktop TP01-2165z, Windows 11 Home, AMD Ryzen™ 5, 16GB RAM, 256GB SSD, 2TB HDD

Windows 11 Home ▪ AMD Ryzen™ 5 processor ▪ AMD Radeon™ Graphics ▪ 16 GB memory; 2 TB HDD storage; 256 GB SSD storage ▪ DVD-Writer

20W71AA#ABA

Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
Intel® UHD Graphics for 11th Gen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

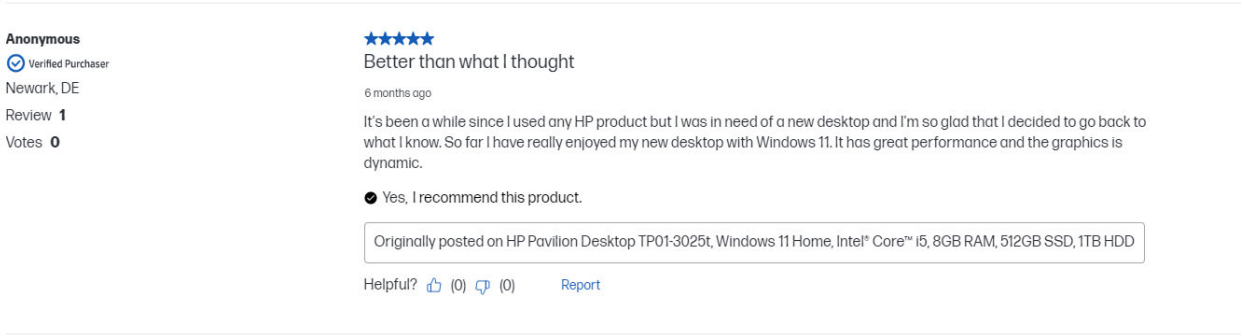
HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	• CBR • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL	H265/HEVC DECODE All	H265/HEVC ENCODE All
+ ☐	AMD Radeon™ RX 7900 XTX	Yes	Yes
+ ☐	AMD Radeon™ RX 7900 XT	Yes	Yes
+ ☐	AMD Radeon™ RX 7900 GRE	Yes	Yes
+ ☐	AMD Radeon™ RX 7600	Yes	Yes
+ ☐	AMD Radeon™ RX 7600M XT	Yes	Yes
+ ☐	AMD Radeon™ RX 7600M	Yes	Yes
+ ☐	AMD Radeon™ RX 7700S	Yes	Yes
+ ☐	AMD Radeon™ RX 7600S	Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

180. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:


Anonymous
Verified Purchaser
Newark, DE
Review 1
Votes 0

★★★★★
Better than what I thought
6 months ago
It's been a while since I used any HP product but I was in need of a new desktop and I'm so glad that I decided to go back to what I know. So far I have really enjoyed my new desktop with Windows 11. It has great performance and the graphics is dynamic.
Yes, I recommend this product.
Originally posted on HP Pavilion Desktop TP01-3025t, Windows 11 Home, Intel® Core™ i5, 8GB RAM, 512GB SSD, 1TB HDD
Helpful? (0) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

181. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 22 of the ’991 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such article’s importation into the United States, in a manner that infringes at least Claim 22 of the ’991 Patent.

182. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe the ’991 Patent. On information and belief, HP also advertises other HP products that infringe the ’991 Patent on its website for consumer purchase.

183. On information and belief, HP was aware of the ’991 Patent or acted with willful blindness as to the existence of the ’991 Patent at least as a result of the filing and service of this complaint.

184. On information and belief, HP contributes to the infringement of at least Claim 22 of the ’991 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

185. A claim chart that applies Claim 22 of the ’991 Patent to the HP Accused Products is attached as Exhibit 16. The H.265 Standard referenced in this claim chart can be found in Exhibit 2.

G. U.S. Patent No. 8,050,321 (“the ’321 Patent”)

186. The ’321 Patent, entitled “Grouping of Image Frames in Video Coding,” issued on November 1, 2011, to inventor Miska Hannuksela. The ’321 Patent issued from U.S. Patent Application No. 11/338,934, filed on January 25, 2006, and claims priority to U.S. Provisional Application No. No. 10/306,942, filed on November 29, 2002. The ’321 Patent expires on May 19, 2027. A true and correct copy of the ’321 Patent is attached as Exhibit 8.

187. The ’321 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ‘321 Patent is directed to novel and unconventional improvements to the process of video coding. The ’321 Patent provides improvements over prior video coding techniques that result in substantial benefits to video compression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

188. Digital video files are comprised of still image frames, which are displayed rapidly in succession to create an impression of a moving image. ’321 Patent at 1:55-58. The image frames typically comprise a number of stationary background objects and few moving objects, such that the information in consecutively displayed image frames is typically largely similar. *Id*. at 1:58-

65. Many video coding methods make use of this so-called "temporal redundancy" by using "motion-compensated temporal prediction," in which the contents of an image frame are predicted from other frames. *Id*. at 2:16-23. Frames that use motion-compensated temporal prediction are also called INTER-frames. *Id*. at 2:27-29. Frames that do not use motion-compensated temporal prediction are also called INTRA-frames or I-frames. *Id*. at 2:23-26.

189. Both INTER-frames and INTRA-frames may be used in the motion-compensated prediction of another frame. However, if a frame that is used in the motion-compensated prediction of another frame is lost or corrupted, the frames dependent on it can no longer be correctly decoded. *Id*. at 2:32-33.

190. For example, prior to the '321 Patent, one significant problem occurred when a user wanted to stream or browse a video from somewhere other than the beginning of the video (*e.g.*, the user wishes to start from a certain position such as the middle or where the user left off from a previous viewing). *Id*. at 3:62-4:4. Prior systems did not include a numbering scheme that allowed the decoder to recognize the first I-frame in a sequence of pictures. *Id*. at 11:11-21. Therefore, when streaming or browsing a video file from a point other than the beginning, the decoder would interpret this an unintentional loss of image frames and unnecessarily try to reconstruct the image frames suspected as lost. *Id*. at 11:20-25.

191. The '321 Patent overcame these technical challenges in the prior systems by inventing a novel independent sequence of image frames that includes an indication of a first picture in an independently decodable group of pictures. *Id*. at 4:16-35. The '321 Patent employs the unconventional solution of indicating the first picture in an independently decodable group of pictures so that it is possible for the decoder to start decoding from that first picture and continue

the decoding process without needing prediction from any image frame prior to that first picture. *Id*. at 4:16-38.

192. The ’321 Patent therefore provides a specific technological improvement to the functionality and capabilities of video decoding technology that results in increased efficiency and improved video playback. For example, the encoder can now enable the decoder to begin decoding from a random point in a video stream without any prediction from any prior picture and without storing any pictures decoded prior to the first picture of the independent sequence in its memory. *Id*. at 4:48-58. For another example, the indication by an encoder of a first picture in an independently decodable group of pictures enables the decoder to identify a loss of a picture that is unlikely to allow satisfactory image quality without retransmission or picture refresh. *Id*. at 4:64-5:5.

193. Conventional technology prior to the ’321 Patent was not capable of identifying the first image frame of an independent sequence, wherein all motion-compensated temporal prediction references of the independent sequence refer only to image frames within the independent sequence, and resetting the identifier values for indicated first image frames of independent sequences.

194. The ’321 Patent recognizes and solves these specific technological problems that plagued the conventional technology at the time. The ’321 Patent’s ability to recognize at the decoder an indication of at least one image frame, which is the first image frame, in decoding order, of the independent sequence and to recognize a reset identifier value for the indicated first image frame of the independent sequence was a significant advancement over existing technology.

195. The novel solution of the ’321 Patent, which includes decoding from the video sequence an indication of at least one image frame, which is the first image frame, in decoding

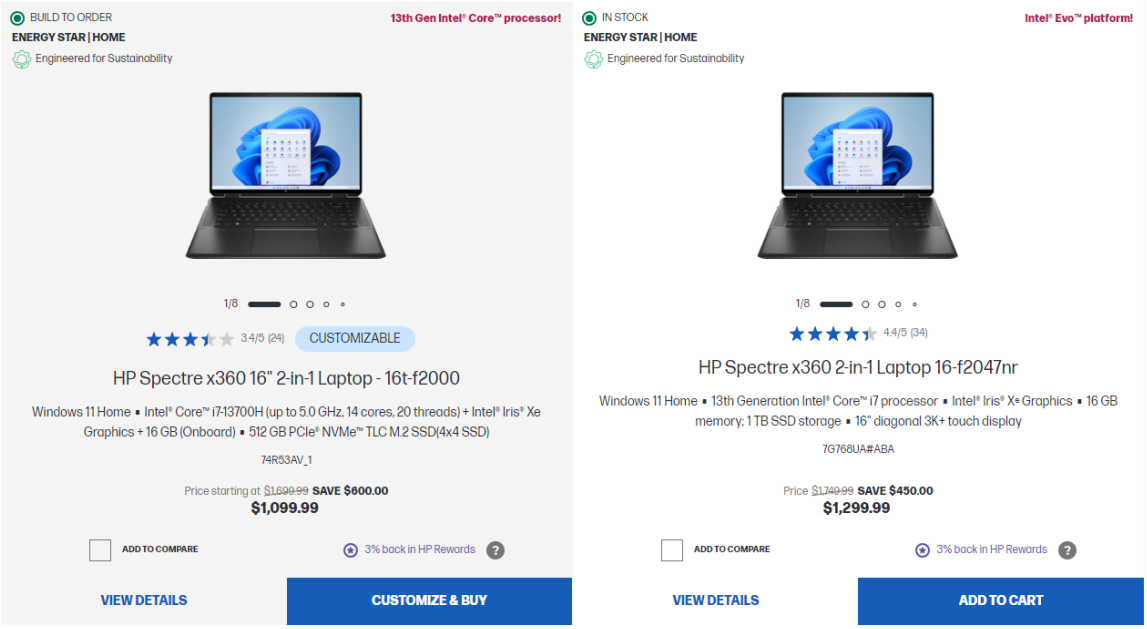
order, of the independent sequence and starting the decoding sequence from the first image frame of the independent sequence, was not well-understood, routine, or conventional, nor was it simply comprised of well-understood, routine, and conventional activities previously known to the industry. Furthermore, the ordered combination of elements, including decoding from the video sequence an indication of at least one image frame, which is the first image frame, in decoding order, of the independent sequence and starting the decoding sequence from the indicated first image frame of the independent sequence, was not well-understood, routine, or conventional.

196. On information and belief, the Accused Products that are sold for importation, imported, and/or sold within the United States after importation by HP infringe at least Claim 8 of the ’321 Patent, either literally or under the doctrine of equivalents.

197. On information and belief, HP directly infringes one or more claims of the ’321 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of the HP Accused Products.

198. Because at least Claim 8 of the ’321 Patent is essential to the H.264 and H.265 Standards, the HP Accused Products’ incorporation of the H.264 and H.265 Standards infringes the ’321 Patent.

199. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that decode H.264 and H.265-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor.



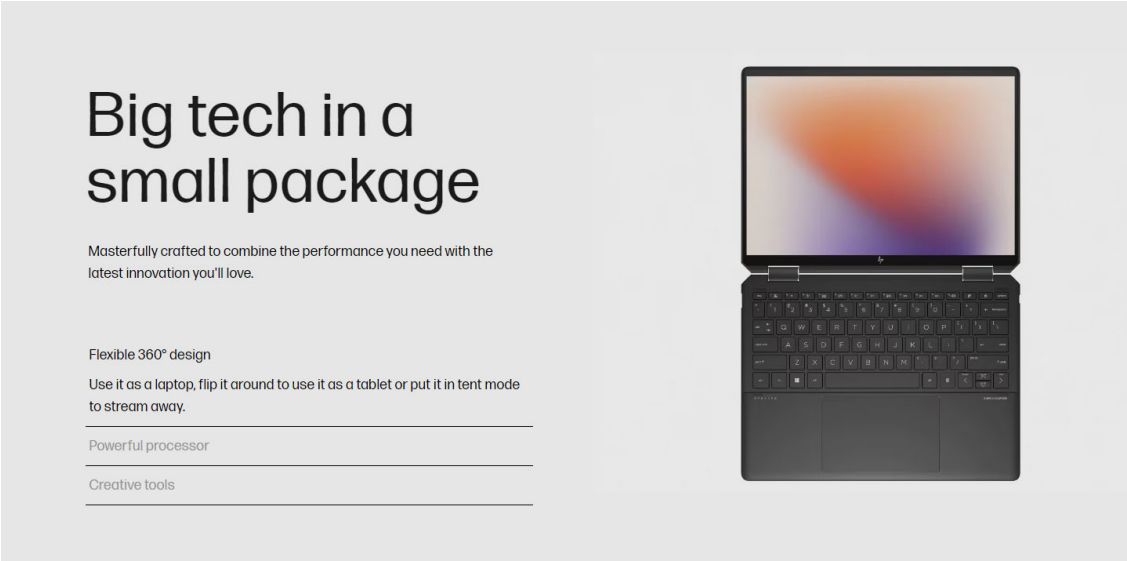
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

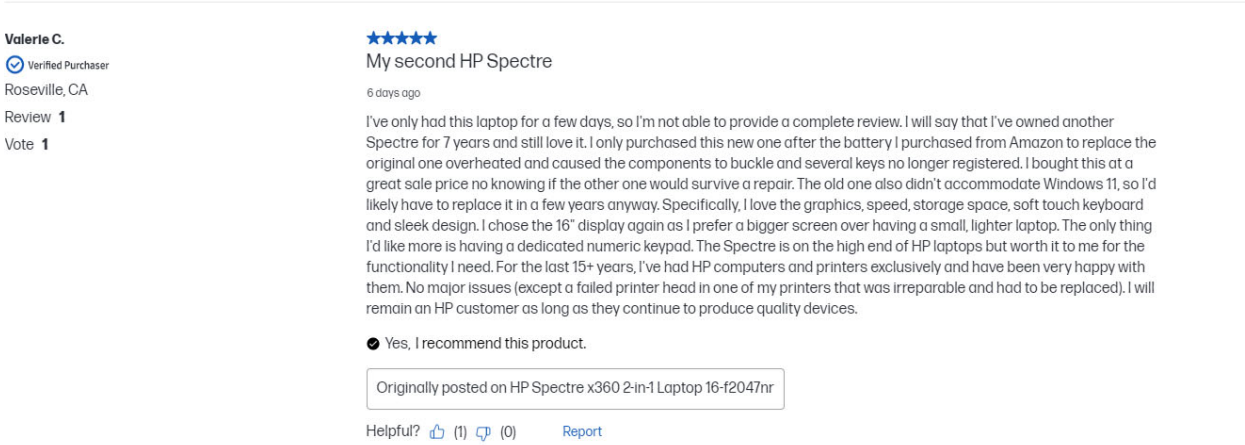
Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

200. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 8 of the ’321 Patent by advertising the products’ ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

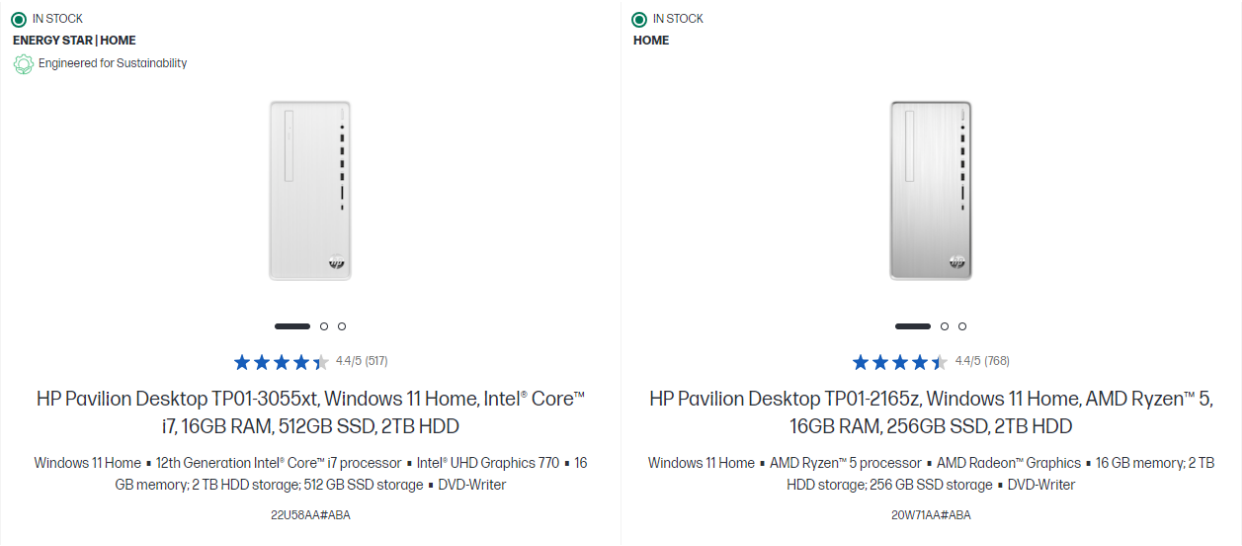
201. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:



Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

202. As another example of HP’s infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.264 and H.265-compliant video. An

example of such an HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor.



Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
Intel® UHD Graphics for 11th Gen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	• CBR • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL	H265/HEVC DECODE (All)	H265/HEVC ENCODE (All)
+	AMD Radeon™ RX 7900 XTX	Yes	Yes
+	AMD Radeon™ RX 7900 XT	Yes	Yes
+	AMD Radeon™ RX 7900 GRE	Yes	Yes
+	AMD Radeon™ RX 7600	Yes	Yes
+	AMD Radeon™ RX 7600M XT	Yes	Yes
+	AMD Radeon™ RX 7600M	Yes	Yes
+	AMD Radeon™ RX 7700S	Yes	Yes
+	AMD Radeon™ RX 7600S	Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

203. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:

Anonymous
Verified Purchaser
Newark, DE
Review **1**
Votes **0**

★★★★★
Better than what I thought
6 months ago
It's been a while since I used any HP product but I was in need of a new desktop and I'm so glad that I decided to go back to what I know. So far I have really enjoyed my new desktop with Windows 11. It has great performance and the graphics is dynamic.
Yes, I recommend this product.
Originally posted on HP Pavilion Desktop TP01-3025t, Windows 11 Home, Intel® Core™ i5, 8GB RAM, 512GB SSD, 1TB HDD
Helpful? (0) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

204. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 8 of the ’321 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such article’s importation into the United States, in a manner that infringes the ’321 Patent.

205. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe the at least Claim 8 of ’321 Patent. On information and belief, HP also advertises other HP products that infringe the ’321 Patent on its website for consumer purchase.

206. On information and belief, HP was aware of the ’321 Patent or acted with willful blindness as to the existence of the ’321 Patent at least as a result of the filing and service of this complaint. Moreover, Nokia informed HP that it was infringing the ’321 Patent when Nokia disclosed the ’321 Patent among a patent list and corresponding list of infringing HP products provided to HP in July 2020, and again in August 2021. Nokia additionally provided claim charts for the ’321 Patent in May 2021 and again in March 2022.

207. On information and belief, HP contributes to the infringement of at least Claim 8 of the ’321 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

208. Claim charts that apply each of the asserted independent claims of the ’321 Patent to the HP Accused Products are attached as Exhibits 17A and 17B. The H.264 and H.265 Standards referenced in the claim charts can be found in Exhibits 1 and 2.

H. U.S. Patent No. 6,950,469 (“the ’469 Patent”)

209. The ’469 Patent, entitled “Method for Sub-Pixel Interpolation,” issued on September 27, 2005, to inventor Marta Karczewicz. The ’469 Patent issued from U.S. Patent Application No. 09/954,608, filed on September 17, 2001. The ’469 Patent expired on August 6, 2023. A true and correct copy of the ’469 Patent is attached as Exhibit 9.

210. The ’469 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’469 Patent is directed to novel and unconventional improvements to motion-compensated prediction in the field of digital video coding. The ’469 Patent provides improvements over prior motion compensated prediction and video decompression techniques that result in substantial benefits to motion prediction, video decompression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

211. A digital video sequence is a sequence of still images with “the illusion of motion being created by displaying consecutive images of the sequence one after the other at a relatively fast frame rate.” ’469 Patent at 1:10-15. Consecutive images (or frames) often tend to be only slightly different from one another because, for example, the background is stationary or only changes slowly. *Id*. at 1:18-25. Thus, there is often a “considerable amount of redundant information” between consecutive images. *Id*. at 1:15-18.

212. The ’469 Patent describes one form of redundancy as “temporal redundancy,” in which “the content of some (often many) frames in a video sequence is ‘predicted’ from other frames in the sequence by tracing the motion of objects or regions of an image between frames.” ’469 Patent at 2:61-65. A “prediction frame” is created using the pixels from a previous frame along with the motion information describing the relative location to the current frame. *Id*. at 3:53-58. The difference between the current frame being decoded and the predicted frame is referred to as the prediction error frame. *Id*. at 3:49-64.

213. However, as the ’469 Patent explains, when using motion prediction, full pixel resolution is generally not sufficiently accurate to model real life motion, which has arbitrary precision. *Id*. at 6:24-35. Therefore, sub-pixel resolution is used. *Id*. at 6:35-41. Allowing motion

vectors to have sub-pixel resolution adds to the complexity and burden of the encoding and decoding operations that must be performed, in part, because the sub-pixel values must be interpolated from full resolution pixels. *Id*. at 6:35-45, 7:23-26.

214. One problem with sub-pixel value interpolation is maintaining prediction accuracy while also limiting computational complexity and memory usage. For example, prior to the '469 Patent, sub-pixel value interpolation methods used predetermined sets of particular nearby pixels and sub-pixels to interpolate other sub-pixel values, without providing any choice or flexibility. *Id*. at 11:15-21. These methods therefore required the unnecessary interpolation and storage of sub-pixel values that were needed only to interpolate other sub-pixels. *Id*. at 11:14-32. This increased computational complexity and memory requirements, as well as reduced accuracy of the interpolated sub-pixel values (due to truncation when storing the values). *Id*. Other methods utilized more direct interpolations of certain sub-pixels in order to reduce unnecessary dependencies, but those methods required high precision arithmetic and high memory requirements. *Id*. at 13:20-29.

215. The '469 Patent overcame these technical challenges in the prior systems by inventing a method of sub-pixel value interpolation that optimizes both computational complexity and memory requirements while maintaining prediction accuracy. The '469 Patent employs the unconventional solution of providing flexibility and a choice of which pixels and sub-pixels to use in the interpolation of other sub-pixels. '469 Patent at 38:47-51. For example, the '469 Patent is superior to prior art methods in that it does not require any ¼ resolution sub-pixels to depend on previously interpolated ¼ resolution sub-pixels. *Id*. at 37:36-41. According to the '469 Patent, ¼ resolution sub-pixels that have ¼ resolution in both the horizontal and vertical directions are interpolated by a diagonally located pixel and sub-pixel or two diagonally located sub-pixels. *Id*.

at 13:66-14:9. This not only reduces the number of calculations required as compared to conventional technology, it also increases the precision by eliminating truncation and clipping that occurs in the intermediate interpolation steps. *Id*. at 37:41-53. Similarly, the ’469 Patent provides the unconventional flexibility of a choice for the interpolation of the ½ resolution sub-pixels. *Id*. at 38:35-39. This also results in the minimization of operations required to perform sub-pixel interpolation. *Id*. at 38:39-43.

216. As another example, the ’469 Patent is superior to prior art methods in that it does not require high precision arithmetic to be used in the calculation of all sub-pixels. *Id*. at 37:66-38:5. The use of lower precision arithmetic decreases the computational complexity and increases the speed at which the calculations can be performed. *Id*. at 38:5-22.

217. The ’469 Patent therefore provides a specific technological improvement to the functionality and capabilities of video coding technology that results in increased efficiency and reduced computational complexity and memory requirements.

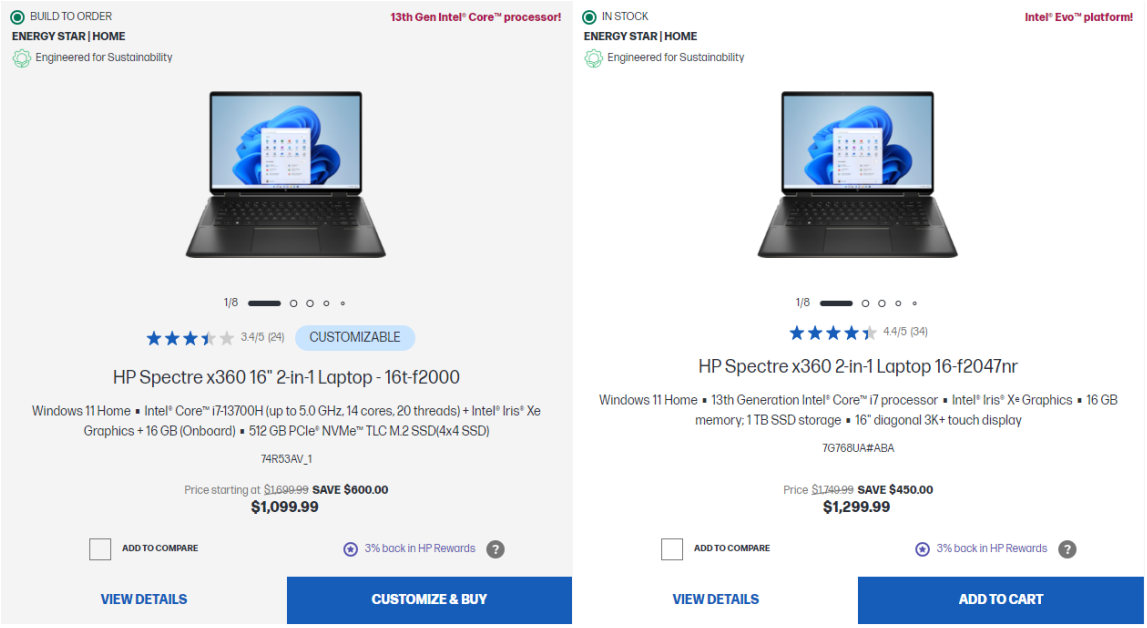
218. Conventional technology prior to the ’469 Patent was not capable of providing any flexibility or choice of dependencies on pixels and sub-pixels used in sub-pixel interpolation. Conventional technology prior to the ’469 Patent also could not avoid unnecessary interpolation and storage of sub-pixel values that were needed only to interpolate other sub-pixels.

219. On information and belief, the Accused Products that are sold for importation, imported, and/or sold within the United States after importation by HP infringe at least Claim 1 of the ’469 Patent, either literally or under the doctrine of equivalents.

220. On information and belief, HP directly infringes one or more claims of the ’469 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of the HP Accused Products.

221. Because at least Claim 1 of the ’469 Patent is essential to the H.264 Standard, the HP Accused Products’ incorporation of the H.264 Standard infringes the ’469 Patent.

222. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that decode H.264-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor.



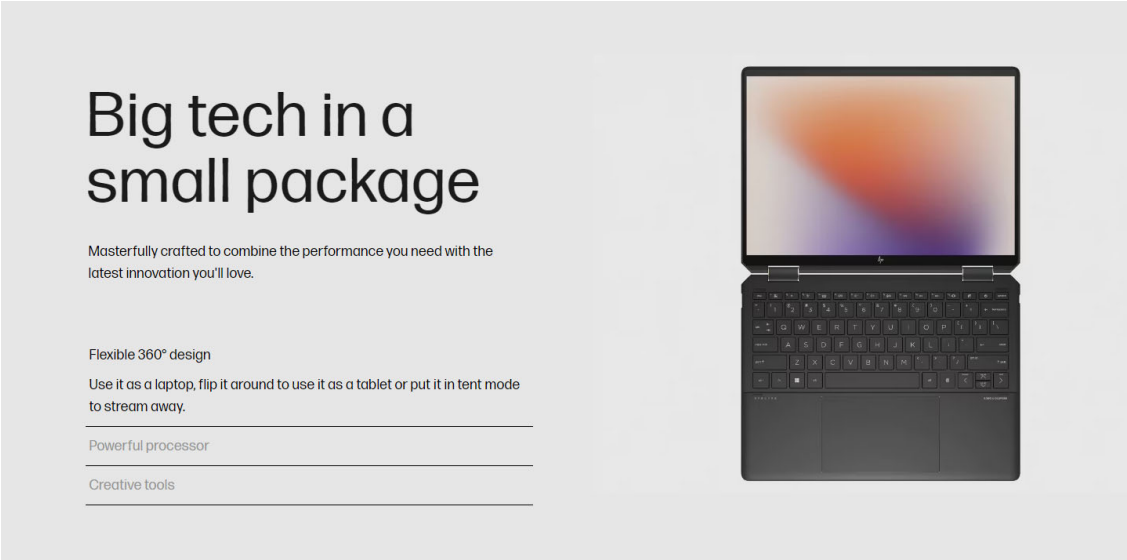
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

223. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 1 of the '469 Patent by advertising the products' ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

224. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:

Valerie C.
Verified Purchaser
Roseville, CA
Review **1**
Vote **1**

★★★★★
My second HP Spectre

6 days ago

I've only had this laptop for a few days, so I'm not able to provide a complete review. I will say that I've owned another Spectre for 7 years and still love it. I only purchased this new one after the battery I purchased from Amazon to replace the original one overheated and caused the components to buckle and several keys no longer registered. I bought this at a great sale price no knowing if the other one would survive a repair. The old one also didn't accommodate Windows 11, so I'd likely have to replace it in a few years anyway. Specifically, I love the graphics, speed, storage space, soft touch keyboard and sleek design. I chose the 16" display again as I prefer a bigger screen over having a small, lighter laptop. The only thing I'd like more is having a dedicated numeric keypad. The Spectre is on the high end of HP laptops but worth it to me for the functionality I need. For the last 15+ years, I've had HP computers and printers exclusively and have been very happy with them. No major issues (except a failed printer head in one of my printers that was irreparable and had to be replaced). I will remain an HP customer as long as they continue to produce quality devices.

Yes, I recommend this product.

Originally posted on HP Spectre x360 2-in-1 Laptop 16-f2047nr

Helpful? (1) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

225. As another example of HP's infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.264-compliant video. An example of such an HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor.

IN STOCK
ENERGY STAR | HOME
Engineered for Sustainability

4.4/5 (517)

HP Pavilion Desktop TP01-3055xt, Windows 11 Home, Intel® Core™ i7, 16GB RAM, 512GB SSD, 2TB HDD

Windows 11 Home ▪ 12th Generation Intel® Core™ i7 processor ▪ Intel® UHD Graphics 770 ▪ 16 GB memory; 2 TB HDD storage; 512 GB SSD storage ▪ DVD-Writer

22U58AA#ABA

IN STOCK
HOME

4.4/5 (768)

HP Pavilion Desktop TP01-2165z, Windows 11 Home, AMD Ryzen™ 5, 16GB RAM, 256GB SSD, 2TB HDD

Windows 11 Home ▪ AMD Ryzen™ 5 processor ▪ AMD Radeon™ Graphics ▪ 16 GB memory; 2 TB HDD storage; 256 GB SSD storage ▪ DVD-Writer

20W71AA#ABA

Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
Intel® UHD Graphics for 11th Gen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

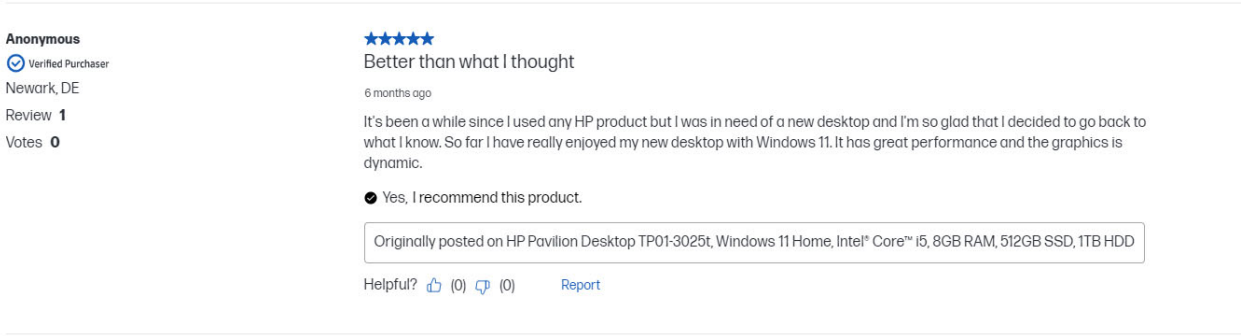
HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	• CBR • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL	H265/HEVC DECODE All	H265/HEVC ENCODE All
+	AMD Radeon™ RX 7900 XTX	Yes	Yes
+	AMD Radeon™ RX 7900 XT	Yes	Yes
+	AMD Radeon™ RX 7900 GRE	Yes	Yes
+	AMD Radeon™ RX 7600	Yes	Yes
+	AMD Radeon™ RX 7600M XT	Yes	Yes
+	AMD Radeon™ RX 7600M	Yes	Yes
+	AMD Radeon™ RX 7700S	Yes	Yes
+	AMD Radeon™ RX 7600S	Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

226. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:



Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

227. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 1 of the ’469 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such article’s importation into the United States, in a manner that infringes the ’469 Patent.

228. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe at least Claim 1 of ’469 Patent. On information and belief, HP also advertises other HP products that infringe the ’469 Patent on its website for consumer purchase.

229. On information and belief, HP was aware of the ’469 Patent or acted with willful blindness as to the existence of the ’469 Patent. Moreover, Nokia informed HP that it was infringing the ’469 Patent when Nokia provided a claim chart and disclosed the ’469 Patent among a patent list and corresponding list of infringing HP products in July 2020.

230. On information and belief, HP contributes to the infringement of at least Claim 1 of the ’469 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

231. A claim chart that applies Claim 1 of the ’469 Patent to the HP Accused Products is attached as Exhibit 18. The H.264 Standard referenced in this claim chart can be found in Exhibit 1.

I. U.S. Patent No. 7,280,599 (“the ’599 Patent”)

232. The ’599 Patent, entitled “Method for Sub-Pixel Value Interpolation,” issued on October 9, 2007, to inventor Marta Karczewicz. The ’599 Patent issued from U.S. Patent Application No. 11/090,717, filed on March 25, 2005, and claims priority to U.S. Application No. No. 09/954,608, filed on September 17, 2001. The ’599 Patent expired on May 14, 2022. A true and correct copy of the ’599 Patent is attached as Exhibit 10.

233. The ’599 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’599 Patent is directed to novel and unconventional improvements to motion-compensated prediction in the field of digital video coding. The ’599 Patent provides improvements over prior motion compensated prediction and video decompression techniques that result in substantial benefits to motion prediction, video decompression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

234. A digital video sequence is a sequence of still images with “the illusion of motion being created by displaying consecutive images of the sequence one after the other at a relatively fast frame rate.” ’599 Patent at 1:17-21. Consecutive images (or frames) often tend to be only

slightly different from one another because, for example, the background is stationary or only changes slowly. *Id*. at 1:20-28. Thus, there is often a "considerable amount of redundant information" between consecutive images. *Id*. at 1:24.

235. The '599 Patent describes one form of redundancy as "temporal redundancy," in which "the content of some (often many) frames in a video sequence is 'predicted' from other frames in the sequence by tracing the motion of objects or regions of an image between frames." *Id*. at 2:66-3:3. A "prediction frame" is created using the pixels from a previous frame along with the motion information describing the relative location to the current frame. *Id*. at 3:57-63. The difference between the current frame being decoded and the predicted frame is referred to as the prediction error frame. *Id*. at 3:54-4:1.

236. However, as the '599 Patent explains, when using motion prediction, full pixel resolution is generally not sufficiently accurate to model real life motion, which has arbitrary precision. *Id*. at 6:29-39. Therefore, sub-pixel resolution is used. *Id*. at 6:40-46. Allowing motion vectors to have sub-pixel resolution adds to the complexity and burden of the encoding and decoding operations that must be performed, in part, because the sub-pixel values must be interpolated from full resolution pixels. *Id*. at 6:40-50, 7:28-30.

237. One problem with sub-pixel value interpolation is maintaining prediction accuracy while also limiting computational complexity and memory usage. For example, prior to the '599 Patent, sub-pixel value interpolation methods used predetermined sets of particular nearby pixels and sub-pixels to interpolate other sub-pixel values, without providing any choice or flexibility. *Id*. at 11:25-32. These methods therefore required the unnecessary interpolation and storage of sub-pixel values that were needed only to interpolate other sub-pixels. *Id*. at 11:25-44. This increased computational complexity and memory requirements, as well as reduced accuracy of the

interpolated sub-pixel values (due to truncation when storing the values). *Id*. Other methods utilized more direct interpolations of certain sub-pixels in order to reduce unnecessary dependencies, but those methods required high precision arithmetic and high memory requirements. *Id*. at 13:34-44.

238. The ’599 Patent overcame these technical challenges in the prior systems by inventing a method of sub-pixel value interpolation that optimizes both computational complexity and memory requirements while maintaining prediction accuracy. The ’599 Patent employs the unconventional solution of providing flexibility and a choice of which pixels and sub-pixels to use in the interpolation of other sub-pixels. ’599 Patent at 38:63-67. For example, the ’599 Patent is superior to prior art methods in that it does not require any ¼ resolution sub-pixels to depend on previously interpolated ¼ resolution sub-pixels. *Id*. at 37:53-58. According to the ’599 Patent, ¼ resolution sub-pixels that have ¼ resolution in both the horizontal and vertical directions are interpolated by a diagonally located pixel and sub-pixel or two diagonally located sub-pixels. *Id*. at 14:14-24. This not only reduces the number of calculations required as compared to conventional technology, it also increases the precision by eliminating truncation and clipping that occurs in the intermediate interpolation steps. *Id*. at 37:59-38:4. Similarly, the ’599 Patent provides the unconventional flexibility of a choice for the interpolation of the ½ resolution sub-pixels. *Id*. at 38:35-39. This also results in the minimization of operations required to perform sub-pixel interpolation. *Id*. at 38:55-59.

239. As another example, the ’599 Patent is superior to prior art methods in that it does not require high precision arithmetic to be used in the calculation of all sub-pixels. *Id*. at 38:17-19. The use of lower precision arithmetic decreases the computational complexity and increases the speed at which the calculations can be performed. *Id*. at 38:23-39.

240. The ’599 Patent therefore provides a specific technological improvement to the functionality and capabilities of video coding technology that results in increased efficiency and reduced computational complexity and memory requirements.

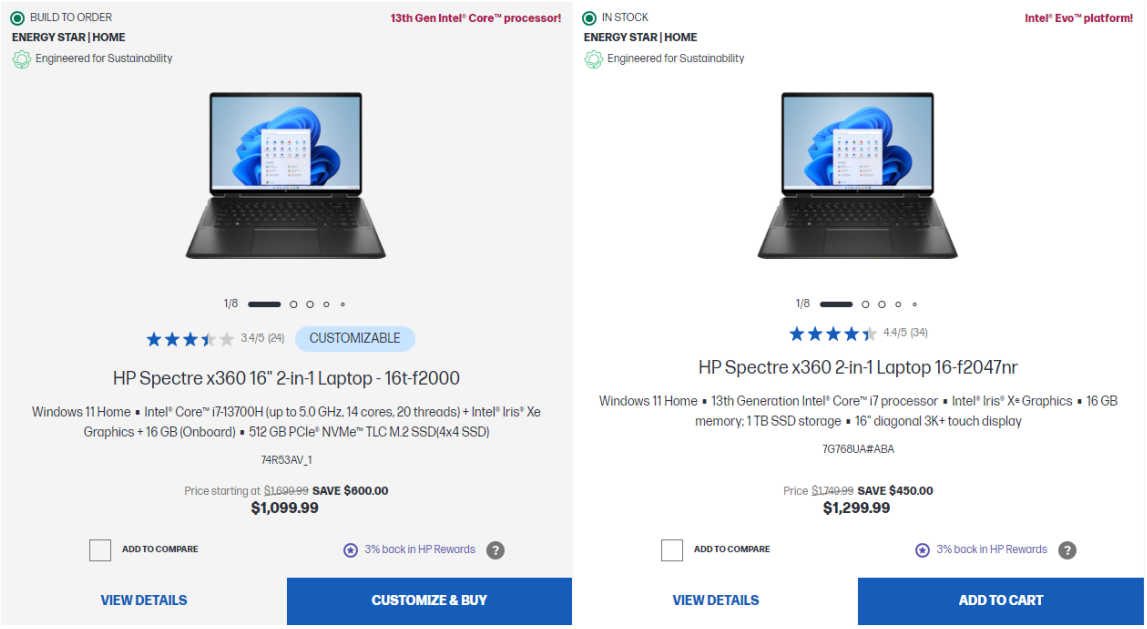
241. Conventional technology prior to the ’599 Patent was not capable of providing any flexibility or choice of dependencies on pixels and sub-pixels used in sub-pixel interpolation. Conventional technology prior to the ’599 Patent also could not avoid unnecessary interpolation and storage of sub-pixel values that were needed only to interpolate other sub-pixels.

242. On information and belief, the Accused Products that are sold for importation, imported, and/or sold within the United States after importation by HP infringe at least Claim 1 of the ’469 Patent, either literally or under the doctrine of equivalents.

243. On information and belief, HP directly infringes at least Claim 1 of the ’599 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of the HP Accused Products.

244. Because at least Claim 1 of the ’599 Patent is essential to the H.264 Standard, the HP Accused Products’ incorporation of the H.264 Standard infringes the ’599 Patent.

245. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that decode H.264-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor.



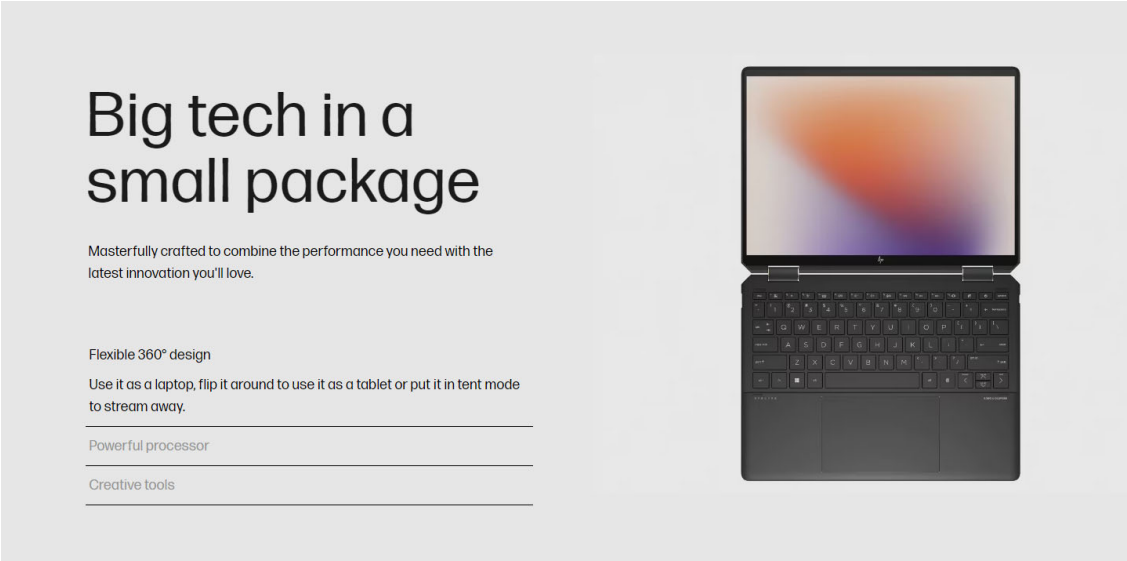
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

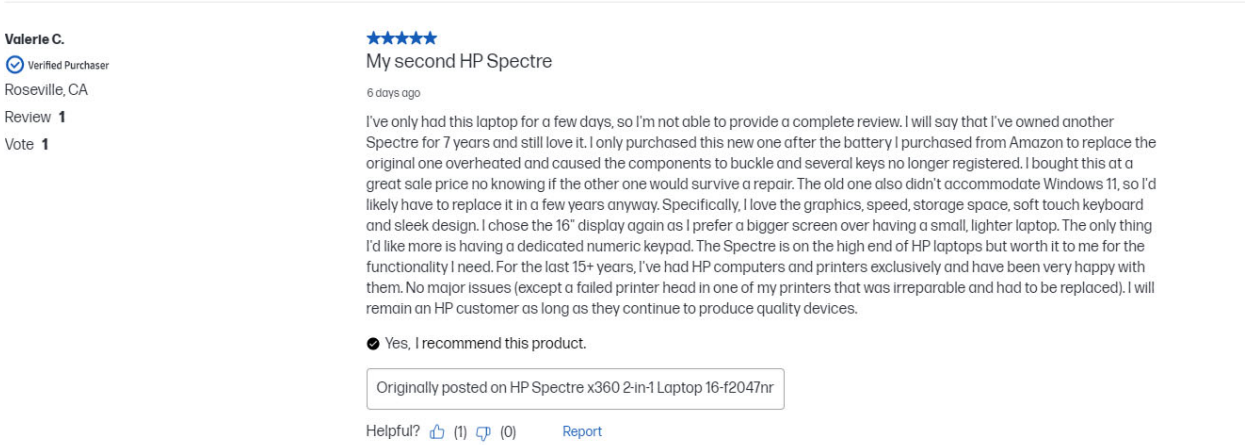
Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

246. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 1 of the ’599 Patent by advertising the products’ ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

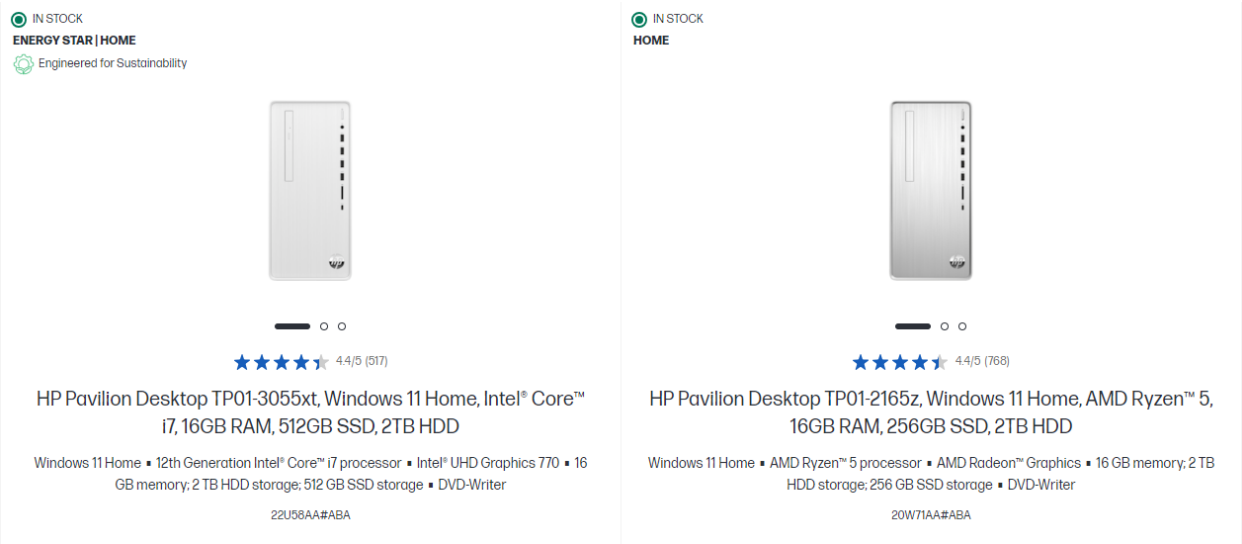
247. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:



Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

248. As another example of HP’s infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.264-compliant video. An example of such

an HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor.



Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
Intel® UHD Graphics for 11th Gen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	• CBR • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL	H265/HEVC DECODE (All)	H265/HEVC ENCODE (All)
+	AMD Radeon™ RX 7900 XTX	Yes	Yes
+	AMD Radeon™ RX 7900 XT	Yes	Yes
+	AMD Radeon™ RX 7900 GRE	Yes	Yes
+	AMD Radeon™ RX 7600	Yes	Yes
+	AMD Radeon™ RX 7600M XT	Yes	Yes
+	AMD Radeon™ RX 7600M	Yes	Yes
+	AMD Radeon™ RX 7700S	Yes	Yes
+	AMD Radeon™ RX 7600S	Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

249. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:

Anonymous
Verified Purchaser
Newark, DE
Review 1
Votes 0

★★★★★
Better than what I thought
6 months ago
It's been a while since I used any HP product but I was in need of a new desktop and I'm so glad that I decided to go back to what I know. So far I have really enjoyed my new desktop with Windows 11. It has great performance and the graphics is dynamic.
Yes, I recommend this product.
Originally posted on HP Pavilion Desktop TP01-3025t, Windows 11 Home, Intel® Core™ i5, 8GB RAM, 512GB SSD, 1TB HDD
Helpful? (0) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

250. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 1 of the '599 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such article's importation into the United States, in a manner that infringes the '599 Patent.

251. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe at least Claim 1 of ’599 Patent. On information and belief, HP also advertises other HP products that infringe the ’599 Patent on its website for consumer purchase.

252. On information and belief, HP was aware of the ’599 Patent or acted with willful blindness as to the existence of the ’599 Patent. Nokia informed HP that it was infringing the ’599 Patent when Nokia disclosed the ’599 Patent among a patent list and corresponding list of infringing HP products in July 2020.

253. On information and belief, HP contributes to the infringement of at least Claim 1 of the ’599 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

254. A claim chart that applies Claim 1 of the ’599 Patent to the HP Accused Products is attached as Exhibit 19. The H.264 Standard referenced in this claim chart can be found in Exhibit 1.

J. U.S. Patent No. 8,036,273 (“the ’273 Patent”)

255. On October 11, 2011, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 8,036,273, entitled “Method for Sub-Pixel Value Interpolation,” to inventors Marta Karczewicz and Antti Olli Hallapuro. Nokia owns all rights to the ’273 Patent necessary to bring this action. The ’273 Patent issued from U.S. Patent Application Serial No. 11/839,205, filed on August 15, 2007, which is a continuation of U.S. Patent Application No. 11/090,717, filed on March 25, 2005, which issued as U.S. Patent No. 7,280,599, which is a continuation of U.S. Patent

Application Serial No. 09/954,608, filed on September 17, 2001, which issued as U.S. Patent No. 6,950,469. The ’273 Patent expired on September 17, 2021. A true and correct copy of the ’273 Patent is attached hereto as Exhibit 21 and incorporated herein by reference.

256. The ’273 Patent is not directed to merely an abstract idea or any patent-ineligible concept. Instead, the ’273 Patent is directed to novel and unconventional improvements to motion-compensated prediction in the field of digital video coding. The ’273 Patent provides improvements over prior motion compensated prediction and video compression techniques that result in substantial benefits to motion prediction, video compression, video quality, and video playback. These substantial benefits are enjoyed by users of the Accused Products when, for example, watching video over the Internet.

257. A digital video sequence is a sequence of still images with “the illusion of motion being created by displaying consecutive images of the sequence one after the other at a relatively fast frame rate.” ’273 Patent at 1:21-25. Consecutive images (or frames) often tend to be only slightly different from one another because, for example, the background is stationary or only changes slowly. *Id*. at 1:25-35. Thus, there is often a “considerable amount of redundant information” between consecutive images. *Id*. at 1:25-28.

258. The ’273 Patent describes one form of redundancy as “temporal redundancy,” in which “the content of some (often many) frames in a video sequence is ‘predicted’ from other frames in the sequence by tracing the motion of objects or regions of an image between frames.” ’273 Patent at 2:62-3:2. A “prediction frame” is created using the pixels from a previous frame along with the motion information describing the relative location to the current frame. *Id*. at 3:47-60. The difference between the current frame being coded and the predicted frame is referred to as the prediction error frame. *Id*. at 3:51-66.

259. A video encoder can therefore represent a current frame in a more compact way by representing the frame in terms of the motion information required to form its prediction frame and the prediction error frame. *Id*. at 3:66-4:5. Thus, the "operating principle of video coders using motion compensation is to minimize the amount of information in a prediction error frame." *Id*. at 3:40-44.

260. However, as the '273 Patent explains, when using motion prediction, full pixel resolution is generally not sufficiently accurate to model real life motion, which has arbitrary precision. *Id*. at 6:24-35. Therefore, sub-pixel resolution is used. *Id*. at 6:35-41. Allowing motion vectors to have sub-pixel resolution adds to the complexity and burden of the encoding and decoding operations that must be performed, in part, because the sub-pixel values must be interpolated from full resolution pixels. *Id*. at 6:35-45, 7:20-23.

261. One problem with sub-pixel value interpolation is maintaining prediction accuracy while also limiting computational complexity and memory usage. For example, prior to the '273 Patent, sub-pixel value interpolation methods used predetermined sets of particular nearby pixels and sub-pixels to interpolate other sub-pixel values, without providing any choice or flexibility. *Id*. at 11:6-13. These methods therefore required the unnecessary interpolation and storage of sub-pixel values that were needed only to interpolate other sub-pixels. *Id*. at 11:6-24. This increased computational complexity and memory requirements, as well as reduced accuracy of the interpolated sub-pixel values (due to truncation when storing the values). *Id*. Other methods utilized more direct interpolations of certain sub-pixels in order to reduce unnecessary dependencies, but those methods required high precision arithmetic and high memory requirements. *Id*. at 13:9-18.

262. The ’273 Patent overcame these technical challenges in the prior systems by inventing a method of sub-pixel value interpolation that optimizes both computational complexity and memory requirements while maintaining prediction accuracy. The ’273 Patent employs the unconventional solution of providing flexibility and a choice of which pixels and sub-pixels to use in the interpolation of other sub-pixels. ’273 Patent at 44:56-59. For example, the ’273 Patent is superior to prior art methods in that it does not require any ¼ resolution sub-pixels to depend on previously interpolated ¼ resolution sub-pixels. *Id*. at 42:47-52. According to the ’273 Patent, ¼ resolution sub-pixels that have ¼ resolution in both the horizontal and vertical directions are interpolated by a diagonally located pixel and sub-pixel or two diagonally located sub-pixels. *Id*. at 21:47-60, 13:66-14:9. This not only reduces the number of calculations required as compared to conventional technology, it also increases the precision by eliminating truncation and clipping that occurs in the intermediate interpolation steps. *Id*. at 43:52-64. Similarly, the ’273 Patent provides the unconventional flexibility of a choice for the interpolation of the ½ resolution sub-pixels. *Id*. at 44:43-47. This also results in the minimization of operations required to perform sub-pixel interpolation. *Id*. at 44:48-51.

263. As another example, the ’273 Patent is superior to prior art methods in that it does not require high precision arithmetic to be used in the calculation of all sub-pixels. *Id*. at 44:10-16. The use of lower precision arithmetic decreases the computational complexity and increases the speed at which the calculations can be performed. *Id*. at 44:16-31.

264. The ’273 Patent therefore provides a specific technological improvement to the functionality and capabilities of video coding technology that results in increased efficiency and reduced computational complexity and memory requirements.

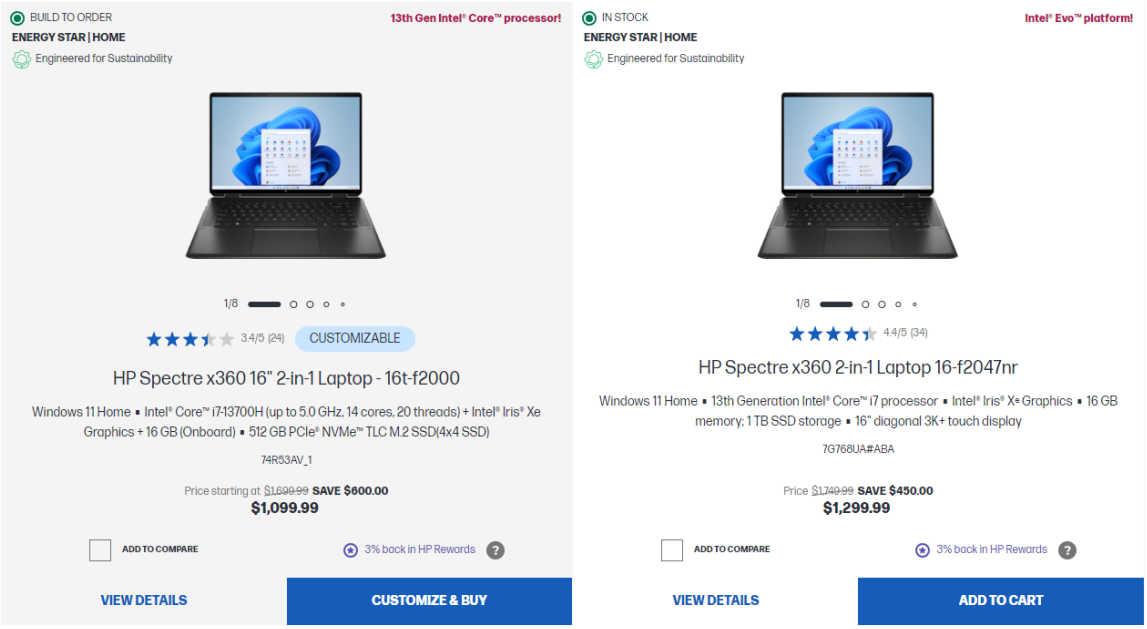
265. Conventional technology prior to the ’273 Patent was not capable of providing any flexibility or choice of dependencies on pixels and sub-pixels used in sub-pixel interpolation. Conventional technology prior to the ’273 Patent also could not avoid unnecessary interpolation and storage of sub-pixel values that were needed only to interpolate other sub-pixels.

266. On information and belief, the Accused Products that are sold for importation, imported, and/or sold within the United States after importation by HP infringe at least Claim 1 of the ’273 Patent, either literally or under the doctrine of equivalents.

267. On information and belief, HP directly infringes at least Claim 1 of the ’273 Patent through its manufacture, sale for importation, importation, use, and sale after importation of one or more of the HP Accused Products.

268. Because at least Claim 1 of the ’273 Patent is essential to the H.264 Standard, the HP Accused Products’ incorporation of the H.264 Standard infringes the ’273 Patent.

269. As just one example of HP’s infringement, HP manufactures and sells laptops with graphics processing units that decode H.264-compliant video. An example of such an HP Accused Product is the HP Spectre X360 laptop series, which includes an Intel Iris XE Graphics processor.



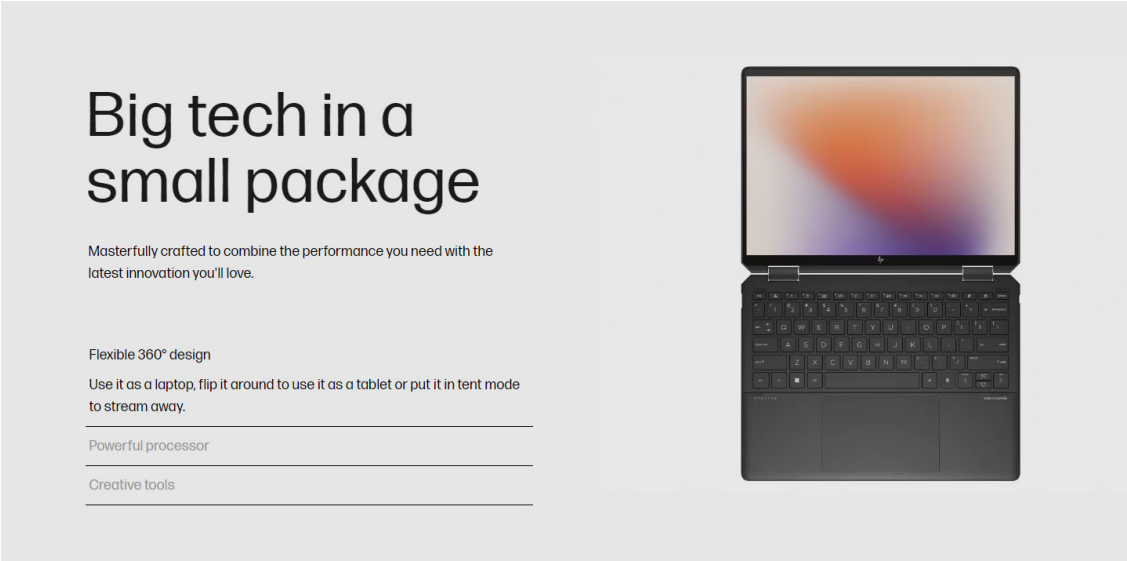
Source: https://www.hp.com/us-en/shop/slp/spectre-family/hp-spectre-x-360?jumpid=ps_con_nb_pm&utm_medium=ps&utm_source=ga&utm_campaign=HP-Store_US_BRA_PS_CPS_Intel_CCF_Google_All_SEM_Exact_Notebooks-Product&utm_term=hp%20spectre%20x360&matchtype=e&adid=523561102024&addisttype=g&cq_src=google_ads&cq_cmp=1340281852&cq_con=59220066208&cq_term=hp%20spectre%20x360&cq_med=&cq_plac=&cq_net=g&cq_pos=&cq_plt=gp&ds_rl=1231771&ds_rl=1254022&gclid=EAIaIQobChMInbTn8NibggMVZEt_AB0f0wqOEAAYASAAEgJTcPD_BwE&gclsrc=aw.ds

Table 1. Media codec support

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

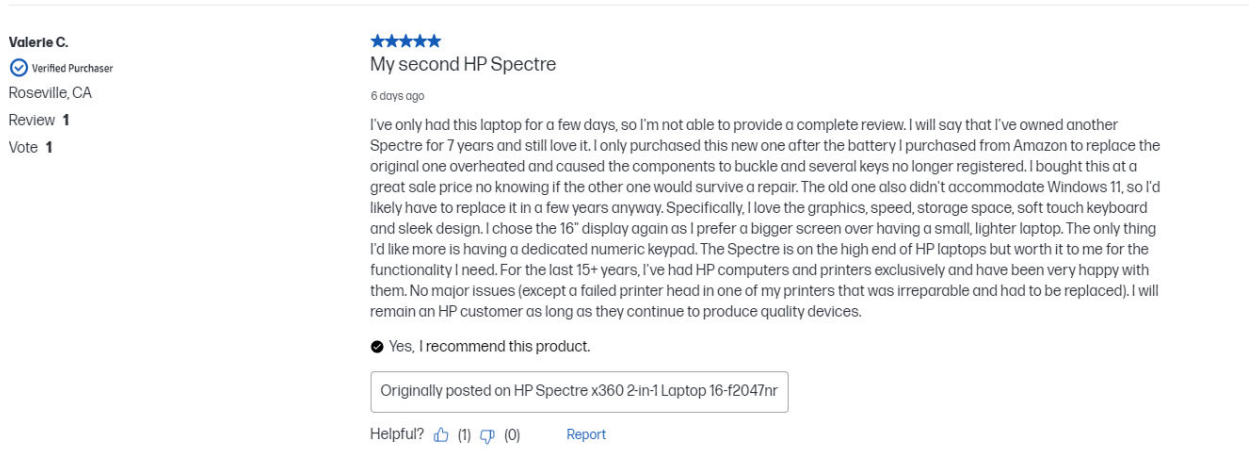
Source: https://www.intel.com/content/www/us/en/developer/articles/technical/encode-and-decode-capabilities-for-7th-generation-intel-core-processors-and-newer.html?wapkw=encode

270. Additionally, HP instructs and encourages users to use the HP Accused Products in a manner that infringes at least Claim 1 of the ’273 Patent by advertising the products’ ability to stream and watch video:



Source: https://www.hp.com/us-en/laptops-and-2-in-1s/spectre.html

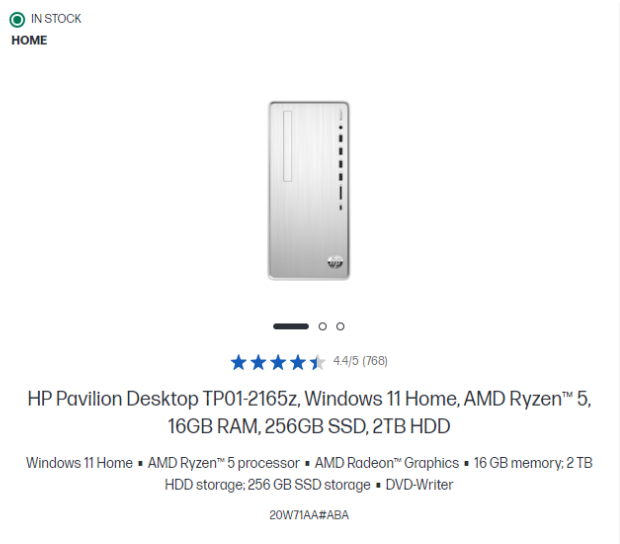
271. Additionally, on information and belief, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:



Source: https://www.hp.com/us-en/shop/pdp/hp-spectre-x360-2-in-1-laptop-16-f2047nr#reviews

272. As another example of HP’s infringement, HP manufactures and sells desktop computers with graphics processing units that decode H.264-compliant video. An example of such

an HP Accused Product is the HP Pavilion Series of Desktop PC, which includes either an Intel UHD Graphics 770 or an AMD Radeon Graphics processor.



Source: https://www.hp.com/us-en/shop/mdp/pavilion--1/pavilion-desktop-344542--1

Processor Graphics	JPEG	MJPEG	MPEG-2 (H.262)	MPEG-4 AVC[1] (H.264) 8-bit 4K	MVC (H.265)	HEVC[1,2] (H.265) 8 bit 4:2:0	HEVC[1,2] (H.265) 10 bit 4:2:0	HEVC (H.265) 12 bit
Intel® Discrete Graphics								
Intel® Iris® Xe MAX Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
11th Generation Intel® Core™ Processors								
Intel® Iris® Xe Graphics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only
Intel® UHD Graphics for 11th Gen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Decode only

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	• CBR • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR

Source: https://www.intel.com/content/www/us/en/docs/onevpl/developer-reference-media-intel-hardware/1-0/features-and-formats.html#ENCODE-11-12

Compare	MODEL	H265/HEVC DECODE (All)	H265/HEVC ENCODE (All)
+	AMD Radeon™ RX 7900 XTX	Yes	Yes
+	AMD Radeon™ RX 7900 XT	Yes	Yes
+	AMD Radeon™ RX 7900 GRE	Yes	Yes
+	AMD Radeon™ RX 7600	Yes	Yes
+	AMD Radeon™ RX 7600M XT	Yes	Yes
+	AMD Radeon™ RX 7600M	Yes	Yes
+	AMD Radeon™ RX 7700S	Yes	Yes
+	AMD Radeon™ RX 7600S	Yes	Yes

Source: https://www.amd.com/en/products/specifications/graphics

273. Additionally, HP publishes customer reviews of the HP Accused Products that show its customers actually use the HP Accused Products to stream and watch video:

Anonymous
Verified Purchaser
Newark, DE
Review **1**
Votes **0**

★★★★★
Better than what I thought
6 months ago
It's been a while since I used any HP product but I was in need of a new desktop and I'm so glad that I decided to go back to what I know. So far I have really enjoyed my new desktop with Windows 11. It has great performance and the graphics is dynamic.
Yes, I recommend this product.
Originally posted on HP Pavilion Desktop TP01-3025t, Windows 11 Home, Intel® Core™ i5, 8GB RAM, 512GB SSD, 1TB HDD
Helpful? (0) (0) Report

Source: https://www.hp.com/us-en/shop/pdp/hp-pavilion-desktop-tp01-3025t-bundle-pc#reviews

274. HP knowingly and intentionally induces users of one or more of the HP Accused Products to directly infringe at least Claim 1 of the ’273 Patent by encouraging, instructing, and aiding one or more persons in the United States, including HP employees who test and operate Accused Products at the direction of HP, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the HP Accused Products, during or after such article’s importation into the United States, in a manner that infringes the ’273 Patent.

275. For example, as seen in the HP publications above, HP advertises the HP Spectre X360 laptop and HP Pavilion desktop on its website so that consumers may purchase and use the products, thus inducing its customers to also infringe at least Claim 1 of ’273 Patent. On information and belief, HP also advertises other HP products that infringe the ’273 Patent on its website for consumer purchase.

276. On information and belief, HP was aware of the ’273 Patent or acted with willful blindness as to the existence of the ’273 Patent. Nokia informed HP that it was infringing the ’273 Patent when Nokia disclosed the ’273 Patent among a patent list and corresponding list of infringing HP products provided to HP in July 2020.

277. On information and belief, HP contributes to the infringement of at least Claim 1 of the ’273 Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

278. A claim chart that applies Claim 1 of the ’273 Patent to the HP Accused Products is attached as Exhibit 20. The H.264 Standard referenced in this claim chart can be found in Exhibit 1.

COUNT I: PATENT INFRINGEMENT OF THE ’808 PATENT

279. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

280. HP has had knowledge and notice of the ’808 Patent and its infringement thereof since at least July 2020, when Nokia provided a claim chart and disclosed the ’808 Patent among a patent list and corresponding list of infringing HP products. HP has also received actual notice

of the ’808 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

281. HP infringes, contributes to the infringement of, and/or induces infringement of the ’808 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’808 Patent.

282. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’808 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

283. HP also indirectly infringes the ’808 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’808 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’808 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’808 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’808 Patent.

284. HP also indirectly infringes the ’808 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP’s customers’ and end-users’ use of the Accused Products, such that the ’808 Patent is directly infringed. The accused components within the Accused Products are material to the invention of the ’808 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the ’808 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’808 Patent and with intent, or willful blindness, that they cause the direct infringement of the ’808 Patent.

285. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

286. HP’s infringement of the ’808 Patent has damaged and will continue to damage Nokia.

COUNT II: PATENT INFRINGEMENT OF THE ’134 PATENT

287. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

288. HP has had knowledge and notice of the ’134 Patent and its infringement thereof since at least July 2020, when Nokia informed HP that it was infringing the ’134 Patent by disclosing the ’134 Patent among a patent list and corresponding list of infringing HP products. Nokia again informed HP that it was infringing the ’134 Patent when Nokia provided a claim chart

in May 2021. HP has also received actual notice of the ’134 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

289. HP infringes, contributes to the infringement of, and/or induces infringement of the ’134 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’134 Patent.

290. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’134 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

291. HP also indirectly infringes the ’134 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’134 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’134 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’134 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’134 Patent.

292. HP also indirectly infringes the ’134 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP’s customers’ and end-users’ use of the Accused Products, such that the ’134 Patent is directly infringed. The accused components within the Accused Products are material to the invention of the ’134 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the ’134 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’134 Patent and with intent, or willful blindness, that they cause the direct infringement of the ’134 Patent.

293. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

294. HP’s infringement of the ’134 Patent has damaged and will continue to damage Nokia.

COUNT III: PATENT INFRINGEMENT OF THE ’818 PATENT

295. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

296. HP has had knowledge and notice of the ’818 Patent and its infringement thereof since at least July 2020, when Nokia provided a claim chart and disclosed the ’818 Patent among a patent list and corresponding list of infringing HP products. Nokia provided an additional claim chart in July 2021 and again including the disclosed the ’818 Patent among a patent list and

corresponding list of infringing HP products in August 2021. HP has also received actual notice of the ’818 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

297. HP infringes, contributes to the infringement of, and/or induces infringement of the ’818 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’818 Patent.

298. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’818 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

299. HP also indirectly infringes the ’818 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’818 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’818 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’818 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’818 Patent.

300. HP also indirectly infringes the ’818 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP’s customers’ and end-users’ use of the Accused Products, such that the ’818 Patent is directly infringed. The accused components within the Accused Products are material to the invention of the ’818 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the ’818 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’818 Patent and with intent, or willful blindness, that they cause the direct infringement of the ’818 Patent.

301. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

302. HP’s infringement of the ’818 Patent has damaged and will continue to damage Nokia.

COUNT IV: PATENT INFRINGEMENT OF THE ’714 PATENT

303. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

304. HP has had knowledge and notice of the ’714 Patent and its infringement thereof since at least July 2021, when Nokia provided a claim chart for a related patent. Nokia additionally provided a patent list, including a related patent, and a corresponding list of infringing products in

August 2021. HP has also received actual notice of the ’714 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

305. HP infringes, contributes to the infringement of, and/or induces infringement of the ’714 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’714 Patent.

306. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’714 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

307. HP also indirectly infringes the ’714 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’714 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’714 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’714 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’714 Patent.

308. HP also indirectly infringes the ’714 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP’s customers’ and end-users’ use of the Accused Products, such that the ’714 Patent is directly infringed. The accused components within the Accused Products are material to the invention of the ’714 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the ’714 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’714 Patent and with intent, or willful blindness, that they cause the direct infringement of the ’714 Patent.

309. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

310. HP’s infringement of the ’714 Patent has damaged and will continue to damage Nokia.

COUNT V: PATENT INFRINGEMENT OF THE ’267 PATENT

311. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

312. HP has had knowledge and notice of the ’267 Patent and its infringement thereof since at least July 2021, when Nokia provided HP with a claim chart for a related patent in July 2021. Additionally, Nokia disclosed a related patent among a patent list and corresponding list of infringing HP products in August 2021.

313. HP has also received actual notice of the ’267 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served on HP.

314. HP infringes, contributes to the infringement of, and/or induces infringement of the ’267 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’267 Patent.

315. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’267 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

316. HP also indirectly infringes the ’267 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’267 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’267 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’267 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’267 Patent.

317. HP also indirectly infringes the ’267 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP’s customers’ and end-users’ use of the Accused Products, such that the ’267 Patent is directly infringed. The accused components within the Accused Products are material to the invention of the ’267 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the ’267 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’267 Patent and with intent, or willful blindness, that they cause the direct infringement of the ’267 Patent.

318. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

319. HP’s infringement of the ’267 Patent has damaged and will continue to damage Nokia.

COUNT VI: PATENT INFRINGEMENT OF THE ’991 PATENT

320. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

321. HP has had knowledge and received actual notice of the ’991 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

322. HP infringes, contributes to the infringement of, and/or induces infringement of the ’991 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’991 Patent.

323. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’991 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

324. HP also indirectly infringes the ’991 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’991 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’991 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’991 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’991 Patent.

325. HP also indirectly infringes the ’991 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in

this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP's customers' and end-users' use of the Accused Products, such that the '991 Patent is directly infringed. The accused components within the Accused Products are material to the invention of the '991 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the '991 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the '991 Patent and with intent, or willful blindness, that they cause the direct infringement of the '991 Patent.

326. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

327. HP's infringement of the '991 Patent has damaged and will continue to damage Nokia.

COUNT VII: PATENT INFRINGEMENT OF THE '321 PATENT

328. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

329. HP has had knowledge and notice of the '321 Patent and its infringement thereof since at least July 2020, when Nokia identified the patent to HP. Nokia informed HP that it was infringing the '321 Patent when Nokia disclosed the '321 Patent among a patent list and corresponding list of infringing HP products provided to HP in July 2020, and again in August 2021. Nokia additionally provided claim charts for the '321 Patent in May 2021 and again in March 2022. HP has also received actual notice of the '321 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

330. HP infringes, contributes to the infringement of, and/or induces infringement of the ’321 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’321 Patent.

331. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’321 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

332. HP also indirectly infringes the ’321 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’321 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’321 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’321 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’321 Patent.

333. HP also indirectly infringes the ’321 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in

this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP's customers' and end-users' use of the Accused Products, such that the '321 Patent is directly infringed. The accused components within the Accused Products are material to the invention of the '321 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the '321 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the '321 Patent and with intent, or willful blindness, that they cause the direct infringement of the '321 Patent.

334. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

335. HP's infringement of the '321 Patent has damaged and will continue to damage Nokia.

COUNT VIII: PATENT INFRINGEMENT OF THE '469 PATENT

336. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

337. HP has had knowledge and notice of the '469 Patent and its infringement thereof since at least July 2020, when Nokia provided a claim chart and disclosed the '469 Patent among a patent list and corresponding list of infringing HP products. HP has also received actual notice of the '469 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

338. HP infringes, contributes to the infringement of, and/or induces infringement of the ’469 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’469 Patent.

339. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’469 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

340. HP also indirectly infringes the ’469 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’469 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’469 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’469 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’469 Patent.

341. HP also indirectly infringes the ’469 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in

this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP's customers' and end-users' use of the Accused Products, such that the '469 Patent is directly infringed. The accused components within the Accused Products are material to the invention of the '469 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the '469 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the '469 Patent and with intent, or willful blindness, that they cause the direct infringement of the '469 Patent.

342. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

343. HP's infringement of the '469 Patent has damaged and will continue to damage Nokia.

COUNT IX: PATENT INFRINGEMENT OF THE '599 PATENT

344. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

345. HP has had knowledge and notice of the '599 Patent and its infringement thereof since at least July 2020, when Nokia disclosed the '599 Patent among a patent list and corresponding list of infringing HP products. HP has also received actual notice of the '599 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

346. HP infringes, contributes to the infringement of, and/or induces infringement of the '599 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the '599 Patent.

347. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’599 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

348. HP also indirectly infringes the ’599 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’599 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’599 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’599 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’599 Patent.

349. HP also indirectly infringes the ’599 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP’s customers’ and end-users’ use of the Accused Products, such that the ’599 Patent is directly infringed. The accused

components within the Accused Products are material to the invention of the ’599 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the ’599 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’599 Patent and with intent, or willful blindness, that they cause the direct infringement of the ’599 Patent.

350. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

351. HP’s infringement of the ’599 Patent has damaged and will continue to damage Nokia.

COUNT X: PATENT INFRINGEMENT OF THE ’273 PATENT

352. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

353. HP has had knowledge and notice of the ’273 Patent and its infringement thereof since at least July 2020, when Nokia disclosed the ’273 Patent among a patent list and corresponding list of infringing HP products provided to HP. HP has also received actual notice of the ’273 Patent as of the date this lawsuit was filed and/or the date this Original Complaint was served upon HP.

354. HP infringes, contributes to the infringement of, and/or induces infringement of the ’273 Patent by making, using, selling, offering for sale, and/or importing into the United States products and/or methods covered by one or more claims of the ’273 Patent.

355. HP makes, uses, sells, offers for sale, and/or imports the Accused Products in this District and elsewhere in the United States, and thus directly infringes the ’273 Patent literally and/or under the Doctrine of Equivalents, in violation of 35 U.S.C. § 271.

356. HP also indirectly infringes the ’273 Patent by way of inducement and/or contributory infringement, literally or under the doctrine of equivalents in violation of 35 U.S.C. § (b), by inducing infringement by others, such as HP’s customers and end-users, in this District and elsewhere in the United States. For example, HP’s customers and end-users directly infringe through their use of the inventions claimed in the ’273 Patent. HP induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available the Accused Products, and providing instructions, documentation, and other information to customers and end-users suggesting they use the Accused Products in an infringing manner, including in-store technical support, online technical support, marketing, product manuals, advertisements, online documentation, developer information, and API documentation. As a result of HP’s inducement, HP’s customers and end-users use the Accused Products in the way HP intends and directly infringe the ’273 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’273 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’273 Patent.

357. HP also indirectly infringes the ’273 Patent, as provided by 35 U.S.C. § 271(c), by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. HP’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the Accused Products and causing the Accused Products to be manufactured, used, sold, and offered for sale contribute to HP’s customers’ and end-users’ use of the Accused Products, such that the ’273 Patent is directly infringed. The accused

components within the Accused Products are material to the invention of the ’273 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by HP to be especially made or especially adapted for use in infringement of the ’273 Patent. HP has performed and continues to perform these affirmative acts with knowledge of the ’273 Patent and with intent, or willful blindness, that they cause the direct infringement of the ’273 Patent.

358. Upon information and belief, HP derives revenue, directly and indirectly, from the activities relating to the Accused Products, including their importation, testing, manufacture, use, sale, and offer for sale.

359. HP’s infringement of the ’273 Patent has damaged and will continue to damage Nokia.

COUNT XI: DECLARATORY JUDGMENT THAT NOKIA HAS NEGOTIATED IN GOOD FAITH TOWARDS A LICENSE WITH HP AND COMPLIED WITH ITS RAND COMMITMENT

360. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

361. HP designs, manufactures, and markets products that utilize and comply with the one or more technical standards, such as the ITU H.264 and H.265 Standards. HP requires a license to one or more of Nokia’s essential patent claims.

362. Nokia has voluntarily declared to ITU that it is prepared to grant licenses to its essential H.264 and H.265 patent claims on a worldwide, non-discriminatory basis and on reasonable terms and conditions.

363. Nokia has at all times been prepared and willing to grant a license to HP under its essential patent claims. To that end, Nokia has negotiated in good faith with HP since at least 2019.

Nokia provided HP with lists of patents having claims essential to the H.264 and H.265 Standards and detailed claim charts describing how HP's products infringe Nokia's essential patent claims. In addition, Nokia repeatedly made its engineers available to engage in technical discussions with HP representatives.

364. A dispute exists between Nokia and HP concerning whether Nokia has negotiated in good faith towards a license with HP and complied with the ITU Common Patent Policy and Nokia's relevant Patent Statement and Licensing Declarations, as well as applicable laws. There is a case or controversy of sufficient immediacy, reality, and ripeness to warrant the issuance of a declaratory judgment.

365. Nokia seeks a declaration that Nokia has negotiated in good faith towards a license with HP and has complied with its obligations under the ITU Common Patent Policy and Nokia's relevant Patent Statement and Licensing Declarations.

COUNT XII: BREACH OF HP'S OBLIGATION TO NEGOTIATE IN GOOD FAITH TOWARDS A LICENSE WITH NOKIA

366. Nokia incorporates by reference the preceding paragraphs as though fully set forth herein.

367. HP is obligated to negotiate in good faith with Nokia with regard to a license for Nokia's patent claims essential to the H.264 and H.265 standards. HP has failed to negotiate in good faith with Nokia and therefore breached its obligation. For example, HP has delayed negotiations and failed to accept Nokia's offers. HP's conduct was unreasonable and did not reflect a sincere interest in timely concluding a license.

368. There is a dispute between Nokia and HP concerning whether HP has complied with its obligation to negotiate in good faith for a license to the essential claims of the Asserted

Patents. This controversy is of sufficient immediacy, reality, and ripeness to warrant the issuance of a declaratory judgment.

369. Nokia is entitled to a declaratory judgment that HP has not complied with its obligation to act in good faith during its negotiations with Nokia, in regard to RAND terms for a license to the parties' essential patent claims, and as a consequence, that HP has repudiated and forfeited its ability to claim rights as a third-party beneficiary of Nokia's RAND commitment to ITU to the extent applicable to the essential claims of Nokia's patents.

370. In addition to a declaration, Nokia also requests an award of damages for the expenses it has incurred because of HP's failure to negotiate in good faith with Nokia.

ATTORNEYS' FEES

371. Nokia is entitled to recover reasonable and necessary attorneys' fees under applicable law.

PRAYER FOR RELIEF

WHEREFORE, Nokia respectfully requests that this Court enter judgment in its favor as follows and afford Nokia the following relief:

I. adjudge and declare that HP infringes claims of the Asserted Patents;

II. adjudge and declare that HP's infringement of claims of the Asserted Patents was willful, and that HP's continued infringement is willful;

III. award Nokia its actual damages;

IV. award Nokia enhanced damages pursuant to 35 U.S.C. § 284;

V. award Nokia pre-judgment and post-judgment interest to the full extent allowed under the law, as well as its costs;

VI. as to claims that are not essential to the H.264 or H.265 Standards, enter an injunction precluding HP and any entities in active concert with it from future acts of infringement;

VII. as to claims that are essential to the H.264 or H.265 Standards, to the extent (a) Nokia is adjudicated to have complied with its commitment to ITU that it prepared to grant licenses to its essential patent claims on reasonable, and non-discriminatory terms; or (b) HP is adjudicated to have failed to negotiate in good faith with Nokia, and/or is adjudicated to have lost the right to claim benefits under Nokia's relevant Patent Statement and Licensing Declarations; enter an injunction precluding HP and any entities in active concert with HP from future acts of infringement;

VIII. adjudge and declare that this is an exceptional case and award Nokia its reasonable attorneys' fees pursuant to 35 U.S.C. § 285;

IX. order an accounting of damages for acts of infringement;

X. adjudge and declare that Nokia has negotiated in good faith towards a license with HP and complied with its obligations under the relevant standard development organization IPR policies and Nokia's relevant standard development organization declarations, as well as applicable laws;

XI. adjudge and declare that HP failed to negotiate in good faith towards a license with Nokia, and has thus lost or forfeited its right to claim third-party beneficiary status, including under Nokia's relevant ITU Patent Statement and Licensing Declarations to the extent applicable to the essential claims of the Asserted Patents;

XII. award Nokia its costs of suit; and

XIII. award such other equitable relief which may be requested and to which Nokia is entitled.

Dated: October 31, 2023

Respectfully submitted,

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***Local Civil Rule 83.5 motions for pro hac vice admission forthcoming**