

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROCHIP TECHNOLOGY INC.,
Petitioner,

v.

APTIV TECHNOLOGIES AG AND APTIV TECHNOLOGIES LIMITED,
Patent Owners.

Case No. IPR2024-00495
U.S. Patent No. 9,619,420

FIRST SUPPLEMENTAL DECLARATION OF ERIC WELCH

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1. I previously submitted a declaration (EX1013) in this proceeding on December 27, 2023. I incorporate by reference §I through §VI of that declaration here.

2. I have been asked by counsel for Microchip to provide information based on my personal knowledge concerning the public availability and accessibility of the exhibits discussed below in the 2013 time period.

3. **Horowitz and Hill Textbook (Exhibit 1069).** The Art of Electronics by Horowitz and Hill 2nd edition, published in 1989 by Cambridge University Press, is and was an extremely popular text and reference book. It was widely known in the 2013 time period, including to POSITAs.

4. I personally have a copy of this textbook on my bookshelf, which I purchased before 2013. It was not difficult for me to locate a copy for purchase as the book was readily available to a POSITA in 2013.

5. **USB Specifications (Exhibit Nos. 1018, 1019, 1020, 1021, 1022, 1023, and 1070).** As a general matter, the USB-IF is the definitive source for USB standards and specifications. The USB-IF operated a public website (well-known to POSITAs) in 2013 at www.usb.org where it would release various USB specifications to the public. Given popularity of USB in 2013, numerous practitioners would visit this website to obtain the various USB standards, including requirements for testing and certification. While there were several books (see *USB*

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Complete by Jan Alexson and *USB Design by Example* by John Hyde) that purported to explain and simplify USB, the final and definitive source for exact details of how it all worked were the USB-IF specifications themselves. Books like Alexson were useful for many developers as a “guide to” and “pointer into” the actual specifications. Especially when a new version or USB feature was coming online, companies wanted to make sure to have the latest official specifications for product development, testing, and compliance purposes. I personally visited the www.usb.org website on numerous occasions before 2013 to obtain a variety (more than 40) different USB specifications, including USB 1.1, OTG 1.0, USB 2.0, USB Print 1.1, USB Mass Storage 1.0, Wireless USB, USBIF Test Procedures 1.3, Battery Charging 1.1, HID 1.1, USB PD 1.0, CDC 1.2, etc. In addition to the documents I personally retrieved, I saw many others that were available for download on the website. In summary, as a general matter, the USB specifications were easily available and widely accessed by POSITAs in 2013.

6. I also note that there was no charge for accessing the specifications.

7. **USB Bridge/Controller Chips (Exhibit Nos. 1031, 1035, 1036, 1037, and 1054).** The fact that two USB Hosts could be connected using a chip (*e.g.*, a bridge or similar controller) so that each USB Host appeared to the other as a USB Device was well-known by 2013 (and much earlier). Indeed, a variety of companies commercially manufactured and sold bridge chips. Some companies that I was

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personally aware of included Prolific and Anchor Chips (later purchased by Cypress). I have reviewed Exhibit Nos. 1031, 1035, 1036, 1037, and 1054, and they are precisely the types of documents and information I was accustomed to seeing—and would expected to have seen—in bridge/controller data sheets circa 2013 (and earlier). These companies made such datasheets and product descriptions readily available, *e.g.*, on their websites, for the obvious reason that the companies were attempting to sell their products, including to employer of POSITAs doing to design work.

8. One reason for the popularity of such chips was because of the need to do “sneakernet” file transfer between two USB Host computers. For example, I worked on a product called “MoveToMac” in the late 90s that supported Apple Macintosh customers switching from a Windows PC. The product came bundled with a USB Host/Host cable and provided an easy method for end users to transfer files from the old to the new computer. This was considered to be easier to setup and more secure than using a network. Exhibit Nos. 1031, 1035, 1036, 1037, and 1054 represent sources of information that POSITAs would access in the design of such work.

9. **Commercial USB Switches (Exhibit Nos. 1059, 1060, 1063, 1068, and 1071).** A POSITA would have understood that the standard connection between a USB Host and USB Device typically comprised the following items. 1) cables and

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signal traces, 2) Hubs, 3) USB Switches and 4) connectors. These are all commodity items available from multiple sources. USB was so popular that the items in question were always specifically engineered specifically for use with USB. Anyone doing design work in this area would have been familiar with these product categories, the companies that made them, and where to locate them on the web.

10. USB switches (in a variety of sizes, shapes, speeds, and configurations) were common in USB designs during the 2013 timeframe (and before). This EE article (<https://www.eetimes.com/focus-on-the-crosspoint-switch/>) provides an overview and would have been available to anyone at the time. In 2013, I was personally aware that Fairchild and Maxim were both good sources for these types of parts. Fairchild and Maxim both adhered to the common practice of publishing public datasheets describing their product offerings, including USB switches and multiplexers. The availability of electronic parts information and datasheets was so widespread that, before 2013 it was possible to use common internet search engines (such as Google and Bing) to hunt for electronic components by functionality directly. It was also common practice for engineers to go to manufacturer websites (or supplier websites like Arrow Electronics) to locate datasheets for standard components like USB multiplexers and switches when designing products that implemented USB.

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11. I have reviewed Exhibit Nos. 1059, 1060, 1063, 1068, and 1071, and they are precisely the types of documents and information I was accustomed to seeing—and would expected to have seen—in data sheets and product lists for USB switches circa 2013 (and earlier).

12. **USB in Automotive (Exhibit Nos. 1049, 1050, and 1051).** In about 2007, my company (InnoSys Incorporated) worked with Microsoft and Ford Motor to create a special purpose USB cable to connect mp3 players and smartphones to Ford's Automobile Sync system. I have reviewed Exhibit No. 1049 and note that it is an article from Cypress Semiconductor, which was a well-known semiconductor company, one I (and POSITAs) were familiar with. In 2013, and for years prior, Cypress was a leader in USB technology. Cypress frequently published application notes and marketing collateral for a variety of USB use cases. Given my own personal work experience in the 2007 timeframe regarding use of USB connections in cars, it is unsurprising that Cypress was publishing articles on that topic (like Exhibit No. 1049) as early as 2006. Just as unsurprising is that others were publishing articles, like Exhibit Nos. 1050 and 1051, circa 2013 regarding using USB technology for vehicle entertainment systems.

13. I am aware that this declaration will be filed as evidence in an IPR proceeding before the PTAB. I am aware that making willfully false statements in my declaration are punishable by fine or imprisonment, or both (under 18 U.S.C.

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§1001), and thus such actions may compromise the validity of the IPR Petition. All statements herein made by me of my own knowledge are true, and all statements made on information and belief are believed to be true.

14. I declare under penalty of perjury that the foregoing is true and correct.

Executed this 12th day of August, 2024 in Berkeley, California.



Eric Welch