IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

ACQIS LLC, a Texas limited liability company, Plaintiff, v. ADVANTECH CO., LTD., a Taiwanese corporation, Defendant.	Civil Action No. 6:23-cv-00882 JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff ACQIS LLC ("Plaintiff" or "ACQIS"), by its attorneys, hereby alleges patent infringement against Defendant Advantech Co., Ltd. ("Advantech" or "Defendant"), as follows:

INTRODUCTION

1. This is an action for patent infringement under the United States Patent Laws, 35 U.S.C. § 1 *et seq*. Beginning in the late 1990s, Dr. William Chu founded ACQIS and invented a variety of pioneering computer technologies that employed serial transmission along low voltage differential signal (LVDS) channels to dramatically increase the speed at which data can be transmitted while also reducing power consumption and noise. Dr. Chu's inventions have become foundational in the computer industry, and are found in a variety of data transmission systems, including PCI Express (PCIe) and/or USB 3.x[1] transactions.

[1] As used herein, "USB 3.x" refers to USB 3.0 and subsequent versions, including USB 3.1, USB 3.2, and any other subsequent versions.

2. Defendant has infringed the following patents owned by ACQIS: U.S. Patent Nos. 9,703,750 ("'750 patent"), 8,977,797 ("'797 patent"), 9,529,769 ("'769 patent"), RE45,140 ("'140 patent"), and RE44,654 ("'654 patent) (collectively, the "ACQIS Patents"). Copies of the ACQIS Patents are attached to this Complaint as Exhibits 1-5.

3. Specifically, Defendant has directly infringed the ACQIS Patents through the importation into the United States of computer products made abroad using ACQIS's patented processes.

4. ACQIS seeks damages and other relief for Defendant's infringement of the ACQIS Patents. ACQIS is entitled to past damages because, without limitation, it has provided actual notice to Defendant and for method claims which do not require marking or notice.

THE PARTIES AND RELATED ENTITIES

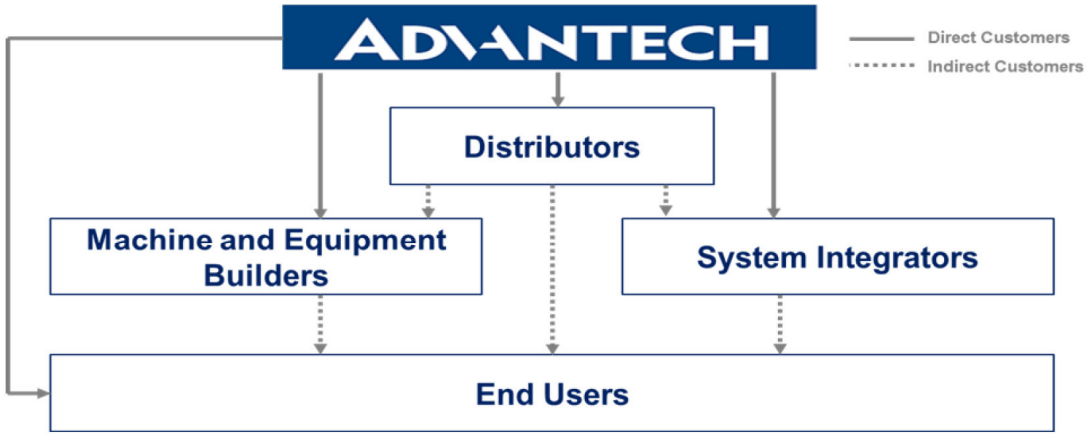
5. Plaintiff ACQIS LLC, is a limited liability company organized and existing under the laws of the State of Texas, with offices at 411 Interchange Street, McKinney, Texas 75071. A related entity, ACQIS Technology, Inc., is a corporation organized under the laws of the State of Delaware, having its principal place of business at 1503 Grant Road, Suite 100, Mountain View, California 94040. ACQIS LLC is operated from California, where its President, Dr. William Chu, resides. Dr. Chu is also the Chief Executive Officer of ACQIS Technology, Inc.

6. Advantech Co., Ltd. is a corporation organized and existing under the laws of Taiwan that maintains an established place of business at 1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei City, Taiwan.[2] Advantech has sold computer servers, modular computers, and network products to related Advantech entities and to third parties in the United States, and has

[2] Advantech Co., Ltd. 2022 Annual Report ("Advantech 2022 Annual Report").

shipped infringing computer servers, modular computers, and network products to the United States.

7. Advantech is the parent company of a multinational conglomerate that operates under the name "Advantech."[3] Advantech produces and markets "embedded board and IPC products through distributors, machine/equipment manufacturers, system and integrators, all of whom consolidate our devices through their own value-added development for sale to end users including manufacturers, public transportation systems, airports, and any field that requires computing capability to enhance their information collection and operating efficiency."[4] As shown below, Advantech markets to corporate and individual customers.

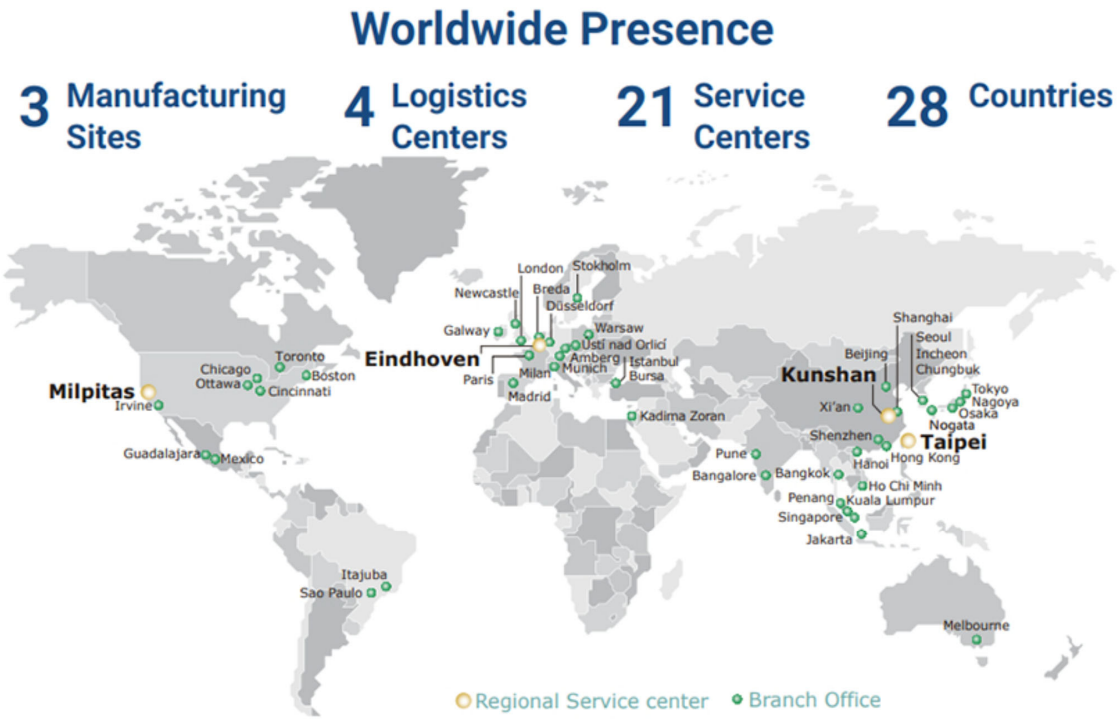


Picture：Advantech has multiple selling channels

8. Advantech's website contains a map of its locations, titled "Distribution of Advantech's Operating Locations"[5]:

[3] Advantech 2022 Annual Report at 91.
[4] Advantech 2022 Annual Report at 94.
[5] Advantech website, https://esg.advantech.com/en-us/operation-and-governance/corporate-operations-and-governance.

Distribution of Advantech's Operating Locations



9. According to its 2022 Annual Report, Advantech's main markets are China, Europe, and the United States.[6] In addition, Defendant has a long established and continually developing presence in the United States. The 2022 Report stated plans for expansion, which included: "Advantech's North American subsidiary is planning to lease land in Tustin, California and develop a new headquarters campus in stages by the second quarter of 2023, in response to local business growth and future expansion needs."[7]

10. "America" is listed as Advantech's second largest market in its market analysis, with 18,715,069 product sales in 2022.[8]

[6] Advantech 2022 Annual Report at 91.
[7] Advantech 2022 Annual Report at 91.
[8] Advantech 2022 Annual Report at 93.

11. On information and belief, Advantech Corp. ("ANA"), also referred to by Advantech as ANA, is a California corporation with its principal place of business at 380 Fairview Way Milpitas, California 95035-3062. ANA is a wholly-owned subsidiary of Advantech for operation in North America.[9] The Director of ANA is K.C. Liu.[10] ANA was established in August of 1987 in Milpitas, California.[11] ANA engages in the marketing, trade, and assembly of industrial use computers[12] to customers in the United States.

12. Advantech Automation Corp. is a wholly owned subsidiary of Advantech, which in turn owns 100% of ANA.[13] ANA owns 100% of Advantech Technology Limited ("AIE"), which is engaged in the "trading of industrial network communication systems."[14] AIE in turn owns 100% of Advantech Czech s.r.o ("ACZ"), which is engaged in the manufacturing of automation control products.[15] The revenues of these four entities are rolled up into, and included in the financials of, their ultimate parent company Advantech. Advantech derives substantial revenue and profit from the activities of these entities.

13. Defendant Advantech shares common control and a close relationship with ANA. As described in Advantech's 2022 Annual Report Advantech Chairman and Founder K.C. Liu is also the Director of ANA as well as the Director of Advantech Automation Corp.[16]

14. On information and belief, domestic purchasers of Advantech products (*e.g.*, computer retailers, IT professionals, and end users) place orders for Advantech products which are then

[9] Advantech 2022 Annual Report at 142.
[10] Advantech 2022 Annual Report at 142.
[11] Advantech 2022 Annual Report at 139.
[12] Advantech 2022 Annual Report at 139.
[13] Advantech 2022 Annual Report at 260.
[14] Advantech 2022 Annual Report at 260.
[15] Advantech 2022 Annual Report at 263.
[16] Advantech 2022 Annual Report at 18, 142.

manufactured by Advantech or a contracted hardware manufacturer abroad. Advantech then ships these products to ANA to act as the nominal importer of these products and to fulfill those orders.

15. Notwithstanding that ANA acts as the nominal importer of the accused products, the act of importation is properly imputed to Advantech because ANA acts as the alter ego and/or agent of Advantech for at least the reasons already discussed and at least those below.

a. As discussed elsewhere in this Complaint, Advantech claims ANA's revenue as its own in consolidated financial reporting.

b. As discussed elsewhere in this Complaint, Advantech and ANA have overlapping executives (together with overlapping executives at wholly owned Advantech entities, including at least one entity that wholly owns ANA).

c. ANA's operations are entirely in support of its sole owner—Advantech. On information and belief, and as an example, ANA does not sell computer products of competitors to Advantech, nor does it enjoy the freedom to do so.

d. Upon information and belief, Advantech Corp. was formed by Advantech to further Advantech's domestic sales of accused infringing products, and is controlled today by Advantech to ensure that result.

16. Upon information and belief, following the manufacture of computer servers, modular computers, and network products by Advantech, these products are then shipped to the United States to Advantech ANA for delivery to domestic purchasers of the infringing products.

17. For example, based on public information, on August 10, 2019, Advantech made a shipment totaling over 16,535 kilograms of hardware to ANA described as consisting of

"COMPUTER PARTS. . ."[17] Upon information and belief, this shipment included infringing products accused in this Complaint. Advantech has made many other shipments of this sort to ANA throughout the enforceable life of the Asserted Patents.

JURISDICTION AND VENUE

18. This is an action for patent infringement under the United States patent laws, 35 U.S.C. § 101 *et seq*.

19. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

20. This Court has personal jurisdiction over the Defendant consistent with the requirements of the Due Process Clause of the United States Constitution and the Texas Long Arm Statute.

21. On information and belief, Defendant has purposefully manufactured and/or distributed computer products that infringe the ACQIS Patents, or that were made abroad using patented processes claimed in the ACQIS Patents, through established distribution channels with the expectation that those products would be sold in the United States, State of Texas, and in this District.

22. Publicly available import data indicates that Advantech sells and imports servers and computers into the United States. For example, data from Import Genius indicates that for the period beginning December 15, 2018 through December 31, 2020, Advantech acted as supplier for at least 220 shipments imported into the United States totaling over 1.1 million kilograms, or over 2 million pounds. Defendant has acted as supplier for 379 shipments imported into the United States in the past five years, totaling over 2.3 million kilograms, or over 5.1 million pounds.[18] A

[17] U.S. Import Bill of Lading No. DFDSTPE0214456.
[18] U.S. Import Records, available from Import Genius.

majority of those shipments were sent to ANA, totaling over 2.2 million kilograms (4.8 million pounds).

23. Publicly available import data indicates that Defendant has sold imported products to purchasers in this judicial district.

24. Upon information and belief, some of these imports relate to accused products. For example, based on public information, on March 25, 2020, Advantech imported a shipping container denoted as carrying "COMPUTER PARTS" and weighing over 770 kilograms (1,697 pounds) to a consignee based in El Paso, Texas.[19] Upon information and belief, this shipment included infringing products accused in this Complaint.

25. Further, Defendant has (itself and/or through the activities of subsidiaries, affiliates, or intermediaries acting as an alter ego or agent of Defendant) committed acts of patent infringement in the United States, State of Texas and this District, including by importing infringing computer products and/or computer products made abroad using ACQIS's patented processes into the United States for sale in the State of Texas and this District.

26. Defendant Advantech is the parent corporation for a production and distribution chain (together with other Advantech subsidiaries, affiliates, and intermediaries) with respect to the manufacture, use, offering to sell, and/or sale of infringing computer products and with respect to the importation into the United States of infringing computer products and of computer products made abroad using patented processes claimed in the ACQIS Patents.

27. Accordingly, Defendant has established minimum contacts within Texas and purposefully availed itself of the benefits of Texas, and the exercise of personal jurisdiction over Advantech would not offend traditional notions of fair play and substantial justice. In addition, or

[19] U.S. Import Bills of Lading No. DMALTPEA65410.

in the alternative, this Court has personal jurisdiction over Advantech pursuant to Federal Rule of Civil Procedure 4(k)(2). *See, e.g., ACQIS LLC v. Lenovo Group Ltd. et al.*, 572 F. Supp. 3d 291, 302-307 (W.D. Tex. Nov. 16, 2021) (denying motion to dismiss for lack of personal jurisdiction as to served defendants).

28. Venue is proper in this District pursuant to 28 U.S.C. § 1391(c)(3) because Defendant does not reside in the United States and thus may be sued in any judicial district in the United States pursuant to 28 U.S.C. § 1391(c)(3).

29. Venue is also appropriate because the patents asserted in this case have been previously asserted in cases before this Court. *See, e.g.*, *ACQIS, LLC v. Quanta Computer, Inc.*, 6:2023-cv-265. Certain of these patents will be the subject of a trial scheduled to be held in this District in March 2024. *ACQIS, LLC v. Asus*, No. 6:2020-cv-966. It would serve the interests of judicial efficiency for this case to be litigated in this District. *See ACQIS LLC v. MiTac Computing Tech. Corp.*, No. W-20-cv-00962-ADA, 2021 U.S. Dist. LEXIS 197938, 2021 WL 4805431 (W.D. Tex., Oct. 14, 2021) (describing four pending cases and denying motion to transfer venue).

FACTUAL BACKGROUND

Dr. Chu and the ACQIS Patents

30. Dr. William Chu has been a prolific innovator in the computing industry since the 1970s.

31. In 1976, Dr. Chu received his Ph.D. in Electrical Engineering from the University of California, Berkeley. Dr. Chu then began working in semiconductor design for American Microsystems, Inc. from 1976 to 1977, and then for Zilog, Inc. from 1977 to 1982.

32. In 1982, Dr. Chu founded Verticom, Inc., which developed innovative technologies relating to video transmission over telephone lines. Verticom also developed graphics products

for the PC computer-aided design (CAD) market. Verticom's success resulted in its stock being listed on the NASDAQ exchange in 1987. In 1988, Verticom was acquired by Western Digital Imaging, Inc.

33. Dr. Chu served as Vice President of Engineering for Western Digital from 1988 to 1991, overseeing a development team in the desktop and portable graphics chip division. In the course of his work at Western Digital, Dr. Chu in 1988 started the company's portable graphics chip business, which became #1 in the portable graphics chip market by 1991. Dr. Chu also led Western Digital to achieve the #1 market share in the PC graphics market in 1990.

34. After Western Digital, Dr. Chu worked for Acumos, Inc. from 1991 to 1992 as a Vice President managing engineering for computer graphics chip development. Acumos was acquired by Cirrus Logic, Inc. in 1992.

35. Dr. Chu then worked for Cirrus Logic from 1992 to 1997, first as a General Manager in the Desktop Graphics Division and later as Co-President of the Graphics Chip Business Unit. During Dr. Chu's time at Cirrus Logic, the company achieved #1 market share in the PC graphics chip market.

36. In 1998, Dr. Chu founded ACQIS Technology, Inc. to pursue his vision of developing a small, portable computer module that could be interchangeably connected with a variety of different peripheral consoles. In the course of this development effort, Dr. Chu recognized the need for a better interconnection between the core computing module and a peripheral console. Such interconnections traditionally conveyed peripheral component interconnect (PCI) bus transactions in parallel using a large number of signal channels and connector pins. This made it difficult to employ LVDS channels, which are more "cable friendly," consume less power, and generate less noise. Dr. Chu wanted to develop an interconnection system that was scalable, used

connectors with low pin counts, was power-efficient, high performing, and easily extendible for future computing needs and technologies. This development work resulted in a large family of patents now owned by ACQIS, which disclose and claim a variety of pioneering inventions relating to improved, high-performance and low-power consuming interconnection technologies for computer modules.

37. After several decades in the industry, Dr. Chu is now a named inventor of over forty U.S. Patents.

38. Among the patent portfolio covering Dr. Chu's inventions and owned by ACQIS are the ACQIS Patents asserted in this case.

39. The '750 patent, entitled "Computer System Including CPU or Peripheral Bridge Directly Connected to a Low Voltage Differential Signal Channel that Communicates Serial Bits of a Peripheral Component Interconnect Bus Transaction in Opposite Directions," was duly and legally issued on July 11, 2017, from a patent application filed October 9, 2014, with William W.Y. Chu as the sole named inventor. The '750 patent claims priority to U.S. Provisional Patent Application No. 60/134,122, filed on May 14, 1999. The entire right, title and interest to the '750 Patent has been assigned to ACQIS, including the right to enforce the '750 patent and obtain legal and equitable relief for infringement.

40. The '797 patent, entitled "Method of Improving Peripheral Component Interface Communications Utilizing a Low Voltage Differential Signal Channel," was duly and legally issued on March 10, 2015, from a patent application filed October 10, 2012, with William W.Y. Chu as the sole named inventor. The '797 patent claims priority to U.S. Provisional Patent Application No. 60/134,122, filed on May 14, 1999. The entire right, title and interest to the '797

Patent has been assigned to ACQIS, including the right to enforce the '797 patent and obtain legal and equitable relief for infringement.

41. The '769 patent, entitled "Computer System Including CPU or Peripheral Bridge Directly Connected to a Low Voltage Differential Signal Channel that Communicates Serial Bits of a Peripheral Component Interconnect Bus Transaction In Opposite Directions," was duly and legally issued on December 27, 2016, from a patent application filed February 26, 2016, with William W.Y. Chu as the sole named inventor. The '769 patent claims priority to U.S. Patent Application No. 11/097,694, filed on March 31, 2005. The entire right, title and interest to the '769 Patent has been assigned to ACQIS, including the right to enforce the '769 patent and obtain legal and equitable relief for infringement.

42. The '140 patent, entitled "Data Security Method and Device for Computer Modules," was duly and legally issued on September 16, 2014, from a reissue application filed December 17, 2013, with William W.Y. Chu as the sole named inventor. The '140 patent is a reissue of U.S. Patent No. 6,643,777, which issued on November 4, 2003, from a patent application filed May 14, 1999. The '140 patent claims priority to U.S. Patent Application No. 09/312,199, filed on May 14, 1999. The entire right, title and interest to the '140 Patent has been assigned to ACQIS, including the right to enforce the '140 patent and obtain legal and equitable relief for infringement.

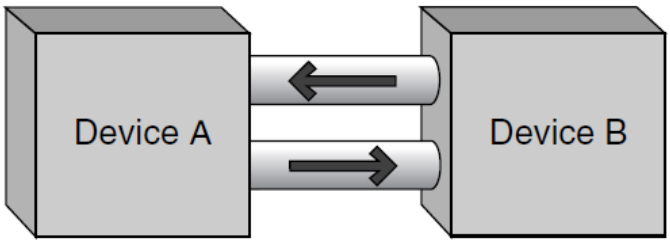
43. The '654 patent, entitled "Data Security Method and Device for Computer Modules," was duly and legally issued on December 17, 2013, from a reissue application filed October 10, 2012, with William W.Y. Chu as the sole named inventor. The '654 patent is a reissue of U.S. Patent No. 6,643,777, which issued on November 4, 2003, from a patent application filed May 14, 1999. The '654 patent claims priority to U.S. Patent Application No. 09/312,199, filed on May 14, 1999. The entire right, title and interest to the '654 Patent has been assigned to ACQIS, including

the right to enforce the '654 patent and obtain legal and equitable relief for infringement.

44. The inventions claimed in the ACQIS Patents enable computers to operate faster with better efficiency through faster interconnections including between the core computing power modules and any connected consoles.

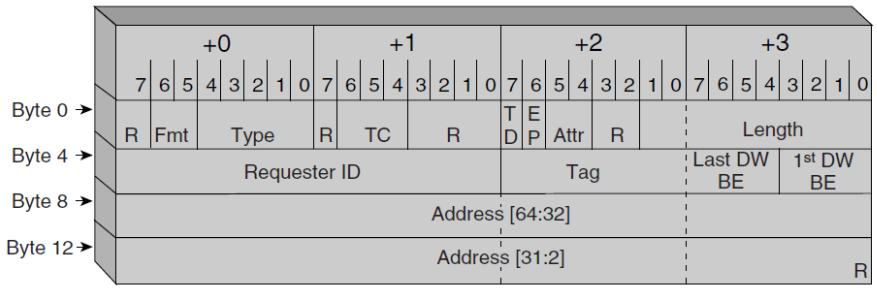
45. The claims in the ACQIS Patents generally relate to computers and computer systems that employ CPUs coupled to LVDS channels that convey various types of data (*e.g.*, PCI bus transactions, USB 3.x data, and/or digital video data) in a serial bit stream using pairs of unidirectional channels to convey the data in opposite directions.

46. Over the years, Dr. Chu's inventive developments have become more and more widely used in computing technologies. One prime example is the computing industry's adoption of PCI Express, which post-dates Dr. Chu's inventions but embodies Dr. Chu's patented interconnection invention by using "high speed, low voltage, differential serial pathway for two devices … to communicate simultaneously by implementing dual unidirectional paths between two devices[.]"



See Introduction to PCI Express – A Hardware and Software Developers Guide, Intel Press (2003), at 1-2 ("There are certain times in the evolution of technology that serve as inflection points that forever change the course of events. For the computing sector and communications, the adoption of PCI Express, a groundbreaking new general input/output architecture, will serve as one of these inflection points.").

47. PCI Express connections transmit data packets known as transaction layer packets (TLP) that include data bits, address bits, and byte enable (BE) information bits.



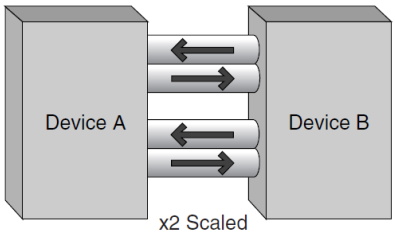
Id. at 93-114.

48. PCI Express "establishes a unique divergence from historical PCI evolutions through a layered architecture improving serviceability and scalability as well as easing software transitions through backward compatibility."[20] The compatibility of PCI Express with PCI can be further explained as follows: "PCI Express employs the same usage model and load-store communication model as PCI and PCI-X. It supports familiar transactions such as memory read/write, IO read/write and configuration read/write transactions. The memory, IO, and configuration address space model is the same as PCI and PCI-X address spaces. By maintaining the address space model, existing OS and driver software will run in a PCI Express system without any modifications. In other words, PCI Express is software backward compatible with PCI and PCI-X systems. In fact a PCI Express system will boot an existing OS with no changes to current drivers and application programs. Even PCI/ACPI power management software will still run."[21]

49. In sum, PCI Express connections are LVDS channels that convey data bits, address bits, and byte enable information bits of a PCI bus transaction in a serial bit stream using pairs of

[20] Adam H. Wilen, Justin P. Schade, Ron Thornburg. INTRODUCTION TO PCI EXPRESS - A HARDWARE AND SOFTWARE DEVELOPER'S GUIDE, Intel Press, 2003, pages 51-52.
[21] Ravi Budruk, et al., PCI EXPRESS SYSTEM ARCHITECTURE, 400, (MindShare Inc., 2004) at 11.

unidirectional, differential signal lanes to convey the information in opposite directions allowing the connection to be scalable and dramatically reducing the pin-count required for connectors, as well as other benefits. "Currently PCI Express defines the following configuration of serial links: x1, x2, x4, x8, x12, x16, and x32. … An x2 configuration indicates two serial paths to and from a device[.]"



	Value Proposition	Benefits
I/O Simplification	• Scalable width and frequency • Higher bandwidth	• Superior performance • Enable evolving applications
High Performance	• Consolidate system I/O • Unity proliferated segments	• Standard I/O modules • Improve TTM and reduce TCO
Layered Architecture	• Layered Architecture .. Longevity • Reliability, Availability, Serviceability • Advanced Power Management • Works in existing PCI Environment	• Reduced returns • Improved service and support • Smooth software changes
Next Gen Multimedia	• Virtual channels • QoS and Isochrony	• Improved multimedia • "Glitch less" audio and video
Ease of Use	• New Form Factors • Innovative Designs • Hot Plug / Hot Swap	• SImple to Install / upgrade • Increased miniaturization

Figure 4.1 PCI Express Benefits

Id. at 3, 50.

50. Another example of a computer-to-peripheral interconnection that embodies Dr. Chu's patented invention is the USB 3.x connection. The "Super Speed" USB 3.0 architecture uses at least two pairs of unidirectional, point-to-point differential signal paths. Each pair includes a transmit path and a receiving path, thus transmitting the USB data packet information in opposite directions.

3.1.4 USB 3.0 Architecture Summary

USB 3.0 is a dual-bus architecture that incorporates USB 2.0 and a SuperSpeed bus. Table 3-1 summarizes the key architectural differences between SuperSpeed USB and USB 2.0.

Table 3-1. Comparing SuperSpeed to USB 2.0

Characteristic	SuperSpeed USB	USB 2.0
Data Rate	SuperSpeed (5.0 Gbps)	low-speed (1.5 Mbps), full-speed (12 Mbps), and high-speed (480 Mbps)
Data Interface	Dual-simplex, four-wire differential signaling separate from USB 2.0 signaling Simultaneous bi-directional data flows	Half-duplex two-wire differential signaling Unidirectional data flow with negotiated directional bus transitions
Cable signal count	Six: Four for SuperSpeed data path Two for non-SuperSpeed data path	Two: Two for low-speed/full-speed/high-speed data path
Bus transaction protocol	Host directed, asynchronous traffic flow Packet traffic is explicitly routed	Host directed, polled traffic flow Packet traffic is broadcast to all devices.

Universal Serial Bus 3.0 Specification, Rev. 1.0 (Nov. 12, 2008), at 3.1 to 3.5. USB 3.x ports operate in conformance with all USB protocols, including USB 2.0 protocols and USB 3.0 or later protocols, which are backward compatible with the USB 2.0 protocol. In sum, USB 3.x connections are LVDS channels using two unidirectional, differential signal pairs that transmit USB protocol data packets in opposite directions.

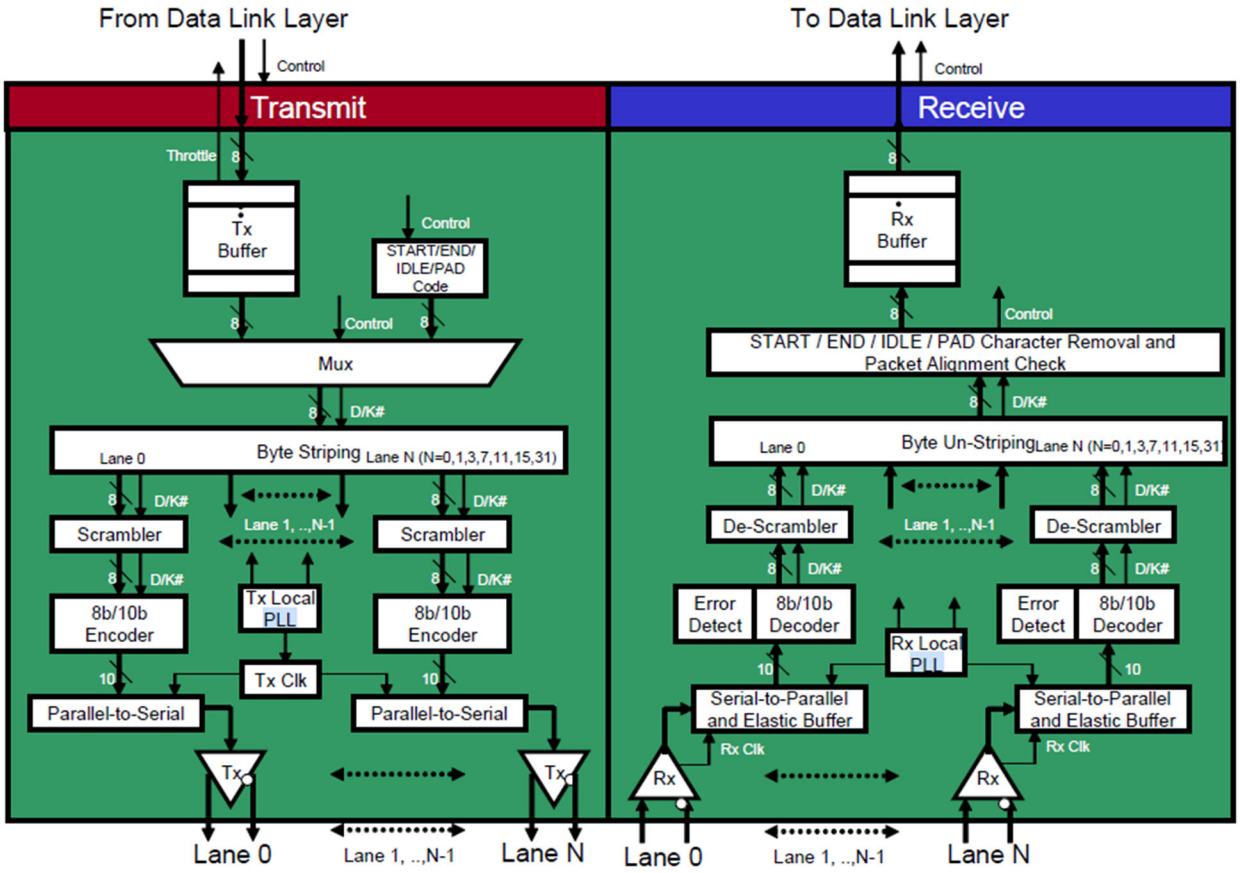
51. The Direct Media Interface ("DMI") is similar to PCIe and implements at least four serial lanes that all use differential signaling constituting 2 transmit lanes and 2 receive lanes and, therefore, transmitting data in opposite directions. *See* https://www.intel.com/content/dam/www/public/us/en/documents/white-papers/ia-introduction-basics-paper.pdf; *see also* https://en.wikipedia.org/wiki/Direct_Media_Interface ("DMI shares many characteristics with PCI Express, using multiple lanes and differential signaling to form a point-to-point link.").

52. The On-Package Interface (OPI) is like DMI but is used when a CPU and system controller are integrated into a single system-on-a-chip ("SoC"). *See, e.g.*, https://web.archive.org/web/20170106002415/https://www.anandtech.com/show/10959/intel-launches-7th-generation-kaby-lake-i7-7700k-i5-7600k-i3-7350k/5.

53. Additional interfaces that employ LVDS channels include, but are not limited to, DisplayPort[22], Embedded DisplayPort ("eDP")[23], Serial-Attached SCSI ("SAS")[24], and Serial ATA or Serial AT Attachment ("SATA")[25].

54. The physical layer of PCI Express includes PLL circuitry. *See* PCI Express Base Specification Revision 3.0, Section 1.5.3, page 49 (physical Layer "includes all circuitry for interface operation, including driver and input buffers, parallel-to-serial and serial-to-parallel conversion, PLL(s), impedance matching circuitry" as well as "logical functions related to interface initialization and maintenance"). The figure below also shows the use of PLL circuitry:

[22] Tektonix, THE BASICS OF SERIAL DATA COMPLIANCE AND VALIDATION MEASUREMENTS – PRIMER, page 9.
[23] eDP is a display panel interface standard that defines the signaling interface between CPUs/GPUs and integrated displays. It is based on the existing DisplayPort standard. Essentially, it is an embedded version of the DisplayPort standard oriented toward applications, such as notebooks and All-In-One PCs. Like DisplayPort, it consists of the Main Link, Auxiliary channel, and an optional Hot-Plug Detect signal. *See* https://edc.intel.com/content/www/us/en/design/ipla/software-development-platforms/client/platforms/alder-lake-desktop/12th-generation-intel-core-processors-datasheet-volume-1-of-2/003/embedded-displayport-edp/.
[24] HP. *Serial ATA and Serial Attached SCSI technologies*. TECHNOLOGY BRIEF, 2003, page 5. Available at http://h10032.www1.hp.com/ctg/Manual/c00256909.pdf.
[25] HP. *Serial ATA and Serial Attached SCSI technologies*. TECHNOLOGY BRIEF, 2003, page 5. Available at http://h10032.www1.hp.com/ctg/Manual/c00256909.pdf; Tektonix, THE BASICS OF SERIAL DATA COMPLIANCE AND VALIDATION MEASUREMENTS – PRIMER, page 9.



Ravi Budruk, *et al.*, PCI EXPRESS SYSTEM ARCHITECTURE, 454, (MindShare Inc., 2004), page 401.

55. Each claim of the ACQIS Patents is a patentable, valid and enforceable invention that is novel and non-obvious over the prior art.

56. ACQIS has not authorized or licensed Advantech to practice any of the inventions claimed in the ACQIS Patents.

Advantech's Infringing Products

57. Advantech is a global leader in the personal and business computer market. Advantech makes and sells a variety of computer servers, modular computers, and network products. Advantech imports a variety of infringing computer servers, modular computers, and network products, as well as industrial computers into the United States and into this judicial District,

through established distribution channels with the expectation that those products would be sold in the United States, State of Texas and this District.

58. On information and belief, Advantech's sale of computers, servers, and network products generates hundreds of millions of dollars in revenue every year. According to Advantech's website, total revenue for products sold in the United States in 2022 was 21,094,389,000 New Taiwanese dollars.[26]

Revenue, Net profit before tax, tax information and number of employees in 2022 (Unit: NT$ thousand)

Country	Revenue	Net profit before tax	Income tax paid	Income tax accrued (current year)	Number of employees
Taiwan	51,806,906	12,951,914	556,579	1,966,386	3,488
China	31,993,329	1,084,079	155,313	45,244	3,718
Japan	3,604,033	282,522	51,296	97,888	231
Korea	2,552,792	161,403	57,386	37,100	128
Europe	12,754,951	611,113	78,955	163,182	490
USA	21,094,389	1,437,182	299,659	291,908	512
Other	3,249,322	702,719	56,181	98,593	360
Total	**127,055,721**	**17,230,932**	**1,255,369**	**2,700,301**	**8,927**

* Note：

1. Revenue, net profit before tax and tax information in this table are aggregated amounts from local entity statutory financial statements. Related-party transactions are not excluded.

2. Net profit before tax for Taiwan includes the income (loss) from the equity method investments.

3. For names of all the resident entities, please refer to the appendix on page 50.

59. Advantech identifies itself as the world's leading industrial computer factory, accounting for 41% of the global market.[27]

60. According to its 2022 Annual Report, Advantech listed its three main markets are China, Europe, and the United States.[28]

[26] Advantech website, https://esg.advantech.com/en-us/operation-and-governance/corporate-operations-and-governance; roughly $675M USD.
[27] Advantech 2022 Annual Report at 95.
[28] Advantech 2022 Annual Report at 91.

61. Defendant has directly infringed one or more claims of each of the ACQIS Patents under at least 35 U.S.C. §§ 271 (g), by importing into the United States computer products that were made abroad using patented processes claimed in the ACQIS Patents.

62. This includes, without limitation, PC, server and networking hardware manufactured abroad and imported during the enforceable life of the Asserted Patents and which contain CPUs connected to PCIe and USB 3.x channels. Plaintiff identifies Advantech's server, switching, gateway, network interface, network appliance, SD-WAN, and private cloud hardware products as representative product groups with products having these claim limitations. These products are collectively referred to herein as the "**Accused Servers**."

63. This further includes, without limitation, application-specific computers manufactured abroad and imported during the enforceable life of the Asserted Patents and which contain CPUs connected to PCIe and USB 3.x channels. Plaintiff identifies Advantech's Embedded PC; Single Board Computer; Computer-on-Module; digital signage player; gaming platform; EDGE Controller; Data Acquisition; automation controller; panel PC; Power Substation PC; IPC; motherboard; backplane; medical terminals, AiOs and PC products as computer hardware products having these claim limitations. These products are collectively referred to as the "**Accused PCs**."

64. The Accused Servers and Accused PCs collectively referred to herein as the "**Accused Products**" or "**Accused Advantech Products**."

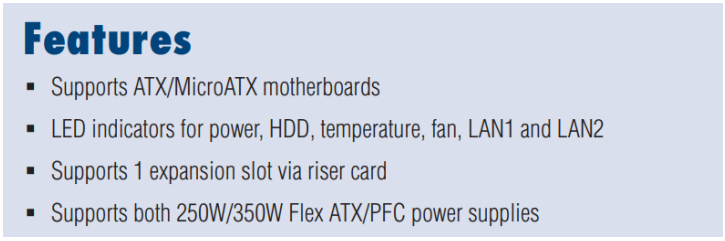
65. On information and belief, Advantech manufactures (or secures manufacture) of at least the Accused Advantech Products abroad and imports those products (directly or through an alter ego or agent subsidiary) and subsequently uses, offers to sell, and/or sells such products in the United States.

66. The Accused Advantech Products include products imported into the United States at least since ACQIS provided Advantech notice of its infringement on or around April 30, 2013.

The Accused Servers

67. On information and belief, all of the Accused Servers are configured and operate in substantially the same way as explained below. Advantech sells computer hardware like the ATX motherboard product below which is advertised as being installed and usable when paired with, for example Advantech's 1U Rackmount Chassis. Other Accused Server products are advertised as a motherboard integrated into the rackmount chassis. *See, e.g.*, https://buysea.advantech.com/resource/ProductResource/SAP/4d5c2aca-5f77-4519-ac79-eb84f502f549.pdf?utm_source=eStore.

68. The ACP-1010 is a 1U Rackmount Chassis that supports ATX and MicroATX motherboards, such as the AIMB-585.



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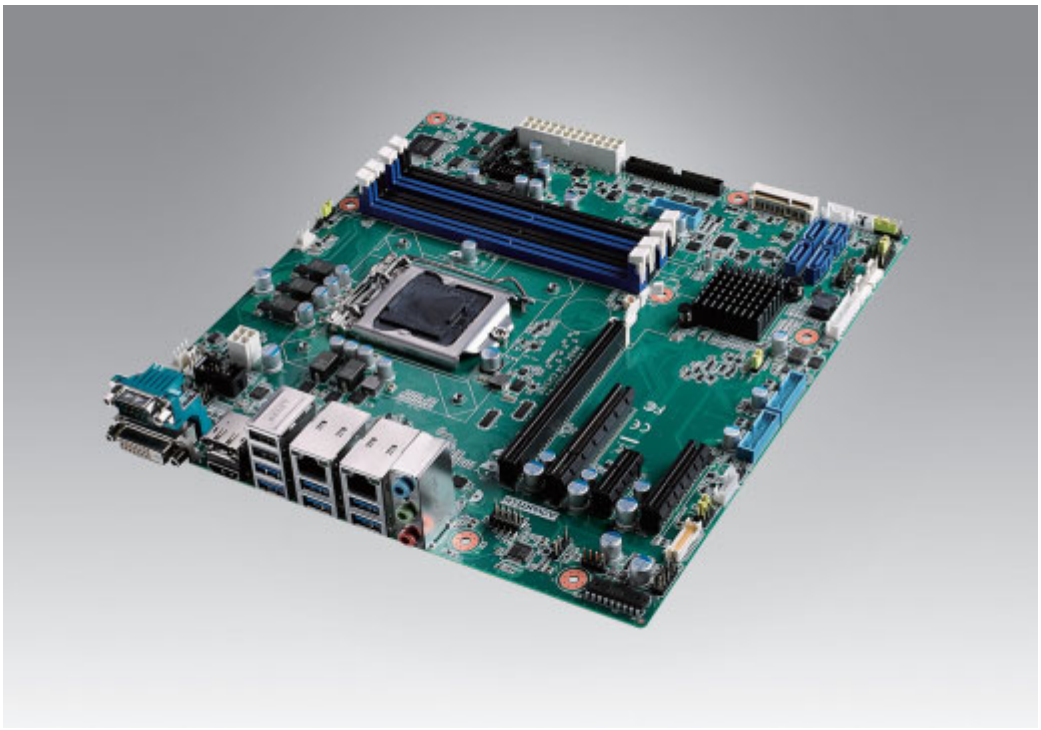

https://web.archive.org/web/20180312134135/http://www.advantech.com/products/1-2jkkgc/aimb-585/mod_166a4ae9-4422-4aba-b91a-85c6beaf152c

69. The AIMB-585 uses an Intel® Core processor, such as Intel® Xeon®/ 6th Gen Core™ i7/i5/i3 processor with a Q170/C236/ H110 chipset which are mounted the motherboard.

Features

- Supports Intel® Xeon®/ 6th Gen Core™ i7/i5/i3 processor with Q170/C236/ H110 chipset

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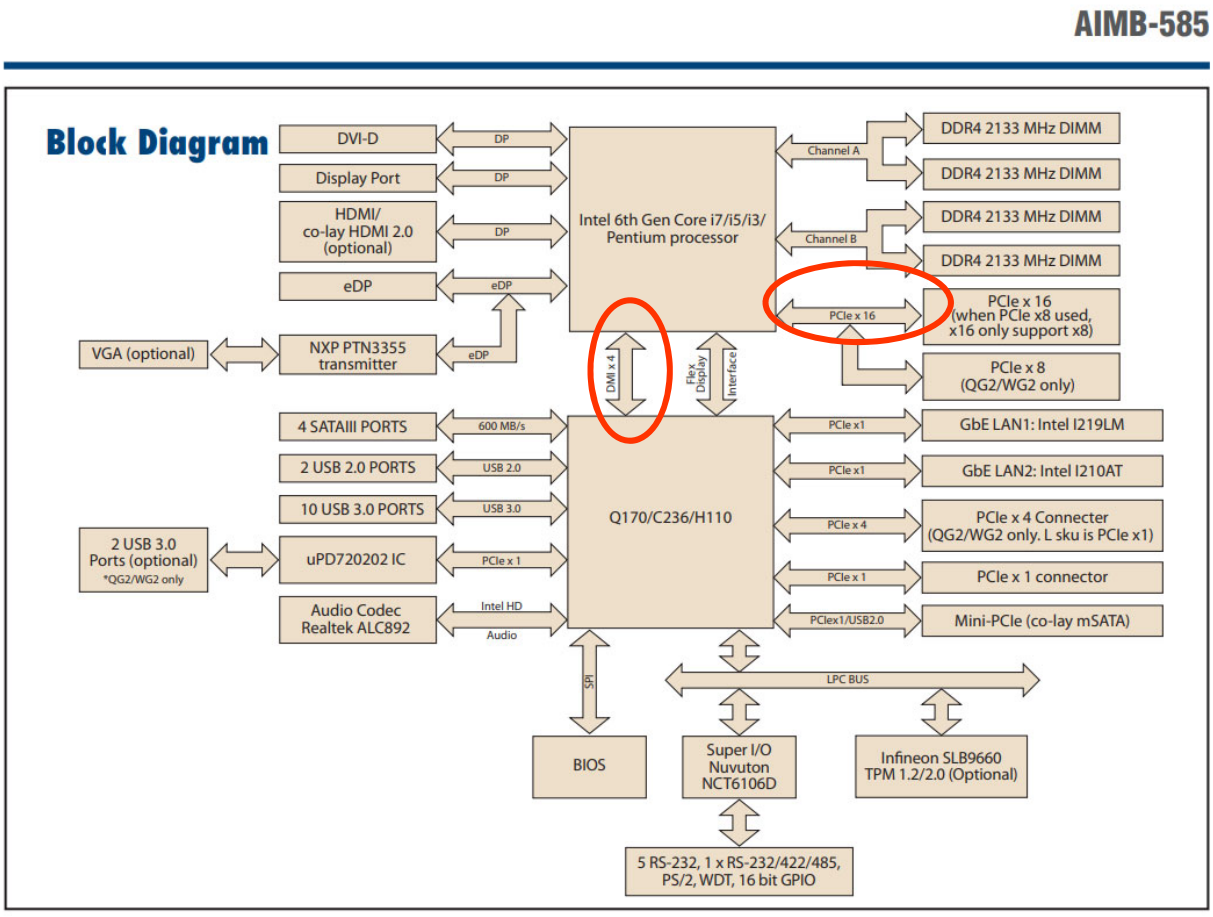
70. The 6th Generation Intel® Core™ i5processors (diagram of integration of this processor into the AIMB-585 featured below) integrate the central processing unit (CPU) with a

graphics subsystem and an interface controller on a single chip. The Intel Core processors integrate one or more interface controllers to manage and drive, for example, the DMI,[29] PCIe and SATA channels connected to the processor. Because the Intel chip of this product directly outputs video signals, it contains an integrated graphics controller.



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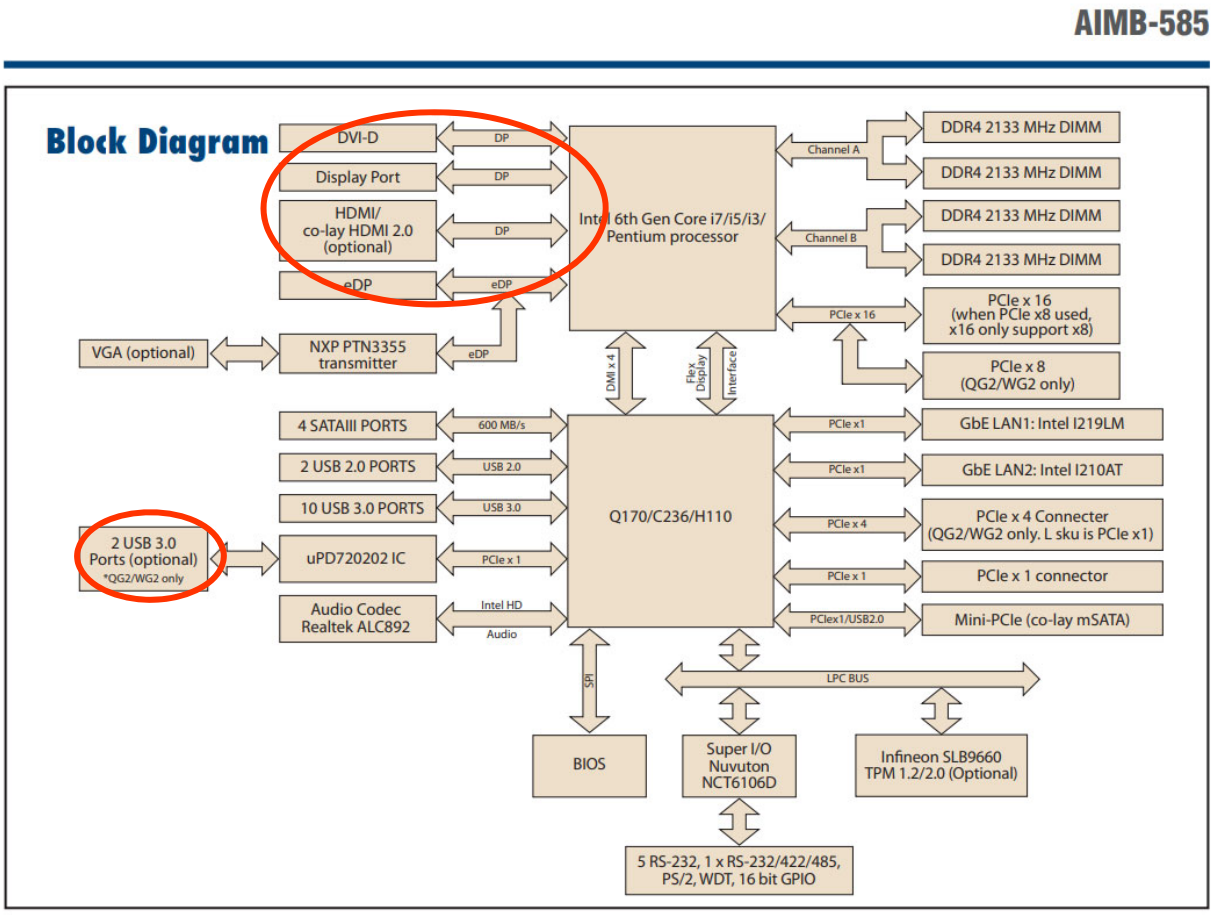
[29] DMI is a lightly modified form of PCIe, and its differences from PCIe are immaterial to the allegations of this complaint.

71. When paired with, say, an ACP-1010 is a 1U Rackmount Chassis, the AIMB-585 comprises a chassis or enclosure which houses one or more connectors that can couple to components of other computer systems and consoles, including the USB 3.0 ports and optional HDMI, DVI, and DisplayPort ports. On information and belief, Advantech or its manufacturers install the AIMB-585 into an ACP-1010 or similar standardized enclosures as part of the manufacturing process.



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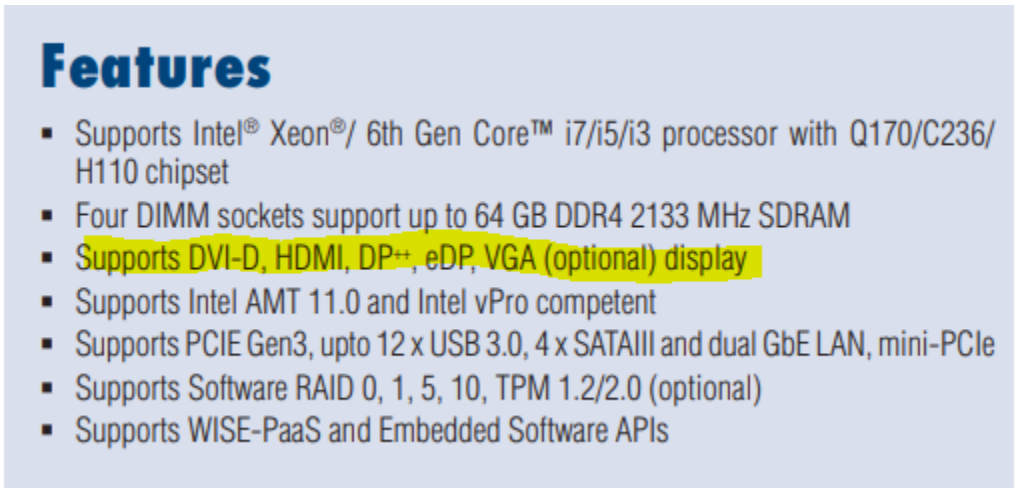

Features

- Supports Intel® Xeon®/ 6th Gen Core™ i7/i5/i3 processor with Q170/C236/ H110 chipset
- Four DIMM sockets support up to 64 GB DDR4 2133 MHz SDRAM
- Supports DVI-D, HDMI, DP++, eDP, VGA (optional) display
- Supports Intel AMT 11.0 and Intel vPro competent
- Supports PCIE Gen3, upto 12 x USB 3.0, 4 x SATAIII and dual GbE LAN, mini-PCIe
- Supports Software RAID 0, 1, 5, 10, TPM 1.2/2.0 (optional)
- Supports WISE-PaaS and Embedded Software APIs

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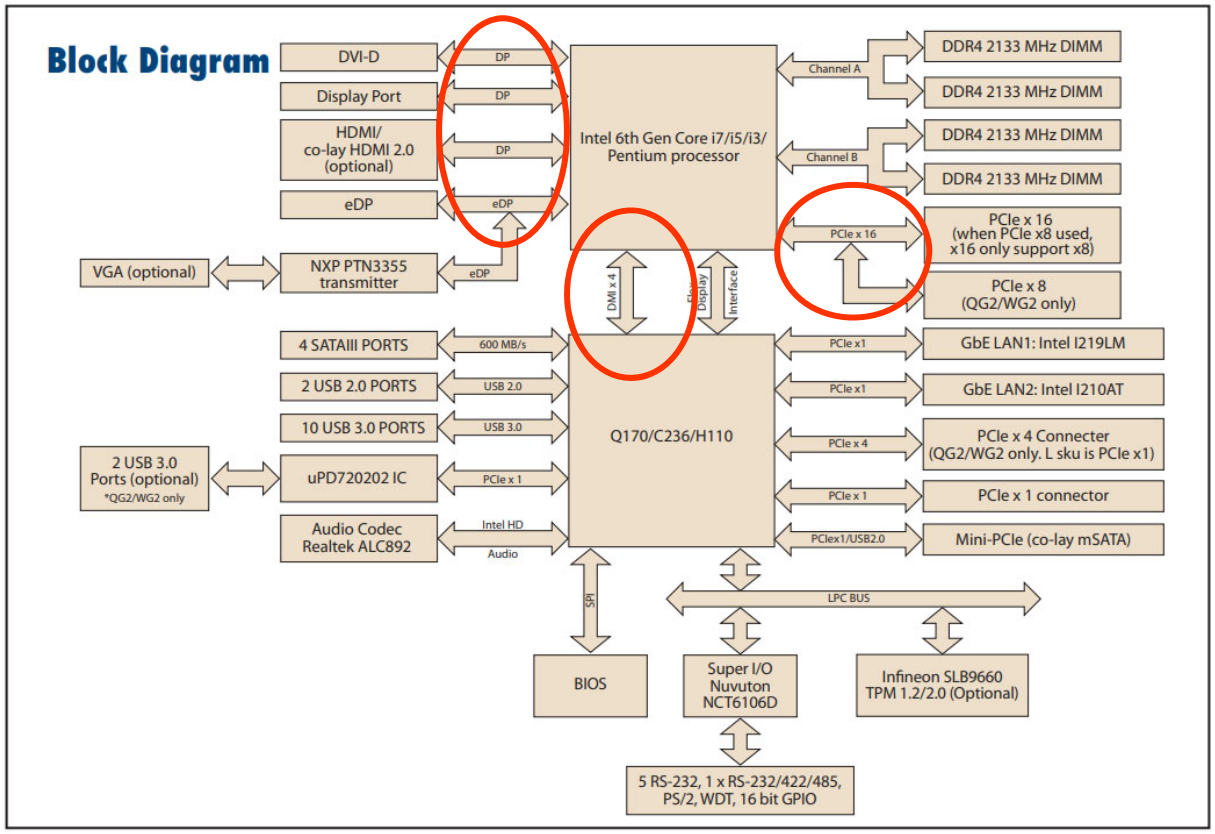
72. The Intel processors employed in the AIMB-585 connect directly to a variety of LVDS channels that convey data bits in a serial stream using unidirectional pairs of lanes transmitting data in opposite directions, including DisplayPort, DMI and PCIe channels.



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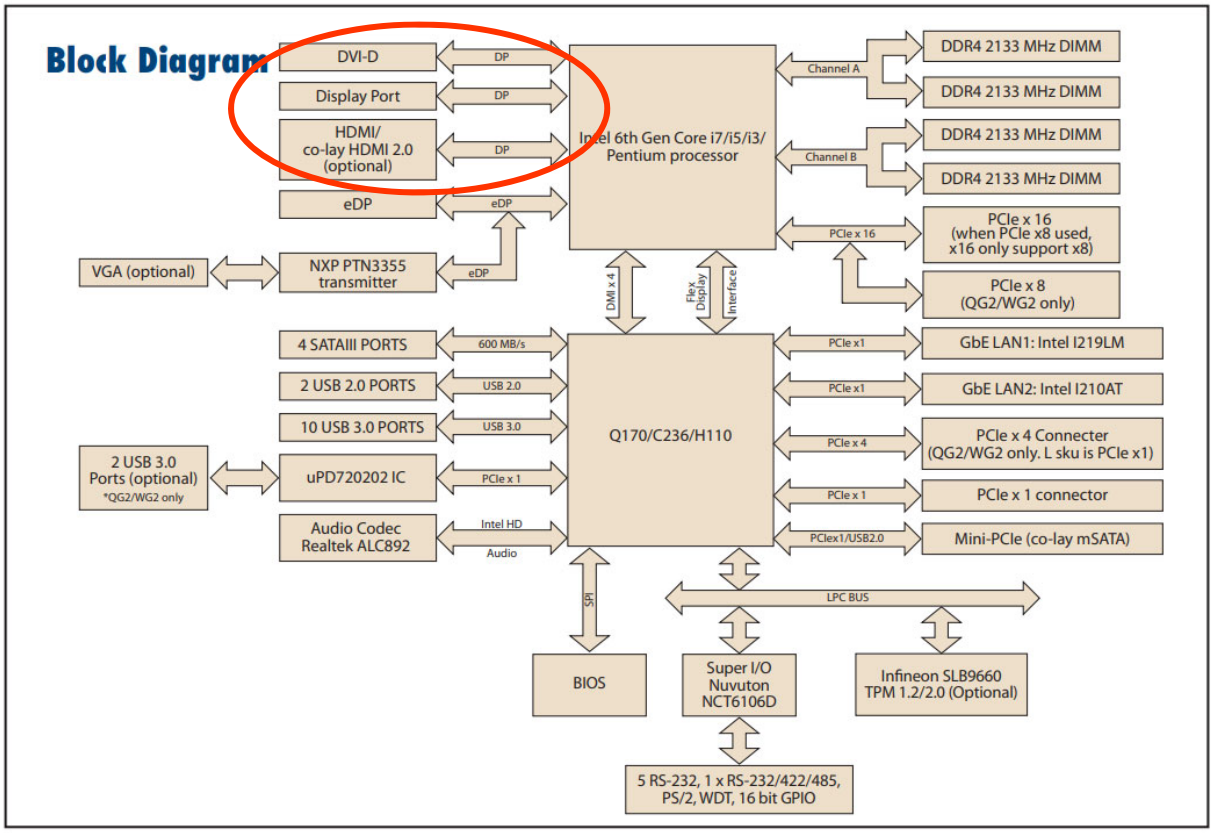
73. The Intel processors employed in the AIMB-585 also connect directly to a variety of differential signal channels that output digital video signals through a connector, including HDMI, DVI, and DisplayPort ports of this product.

Features

- Supports Intel® Xeon®/ 6th Gen Core™ i7/i5/i3 processor with Q170/C236/ H110 chipset
- Four DIMM sockets support up to 64 GB DDR4 2133 MHz SDRAM
- Supports DVI-D, HDMI, DP++, eDP, VGA (optional) display
- Supports Intel AMT 11.0 and Intel vPro competent
- Supports PCIE Gen3, upto 12 x USB 3.0, 4 x SATAIII and dual GbE LAN, mini-PCIe
- Supports Software RAID 0, 1, 5, 10, TPM 1.2/2.0 (optional)
- Supports WISE-PaaS and Embedded Software APIs

AIMB-585



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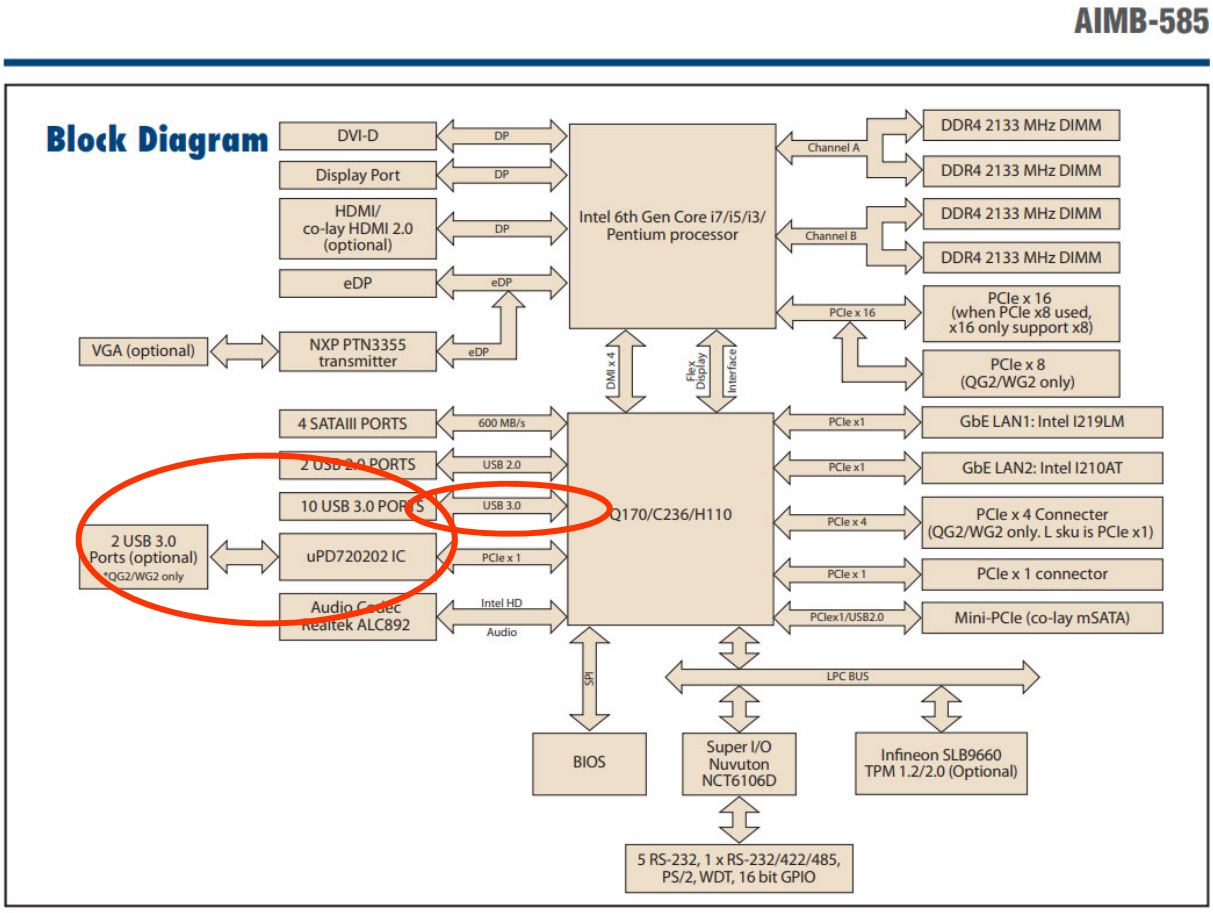
74. The AIMB-585 also connects LVDS channels that convey USB data packets through pairs of unidirectional differential signal paths in opposite directions—USB 3.x ports.



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75. The AIMB-585 has DDR4 system memory connected directly to the CPU.

Memory	Technology	Dual Channel DDR4 2133 MHz SDRAM (L sku: 2 slot)
	Max. Capacity	64 GB/16 GB per DIMM (L sku: 32GB)
	Socket	4 x 288-pin DIMM (L sku: 2 x 288)

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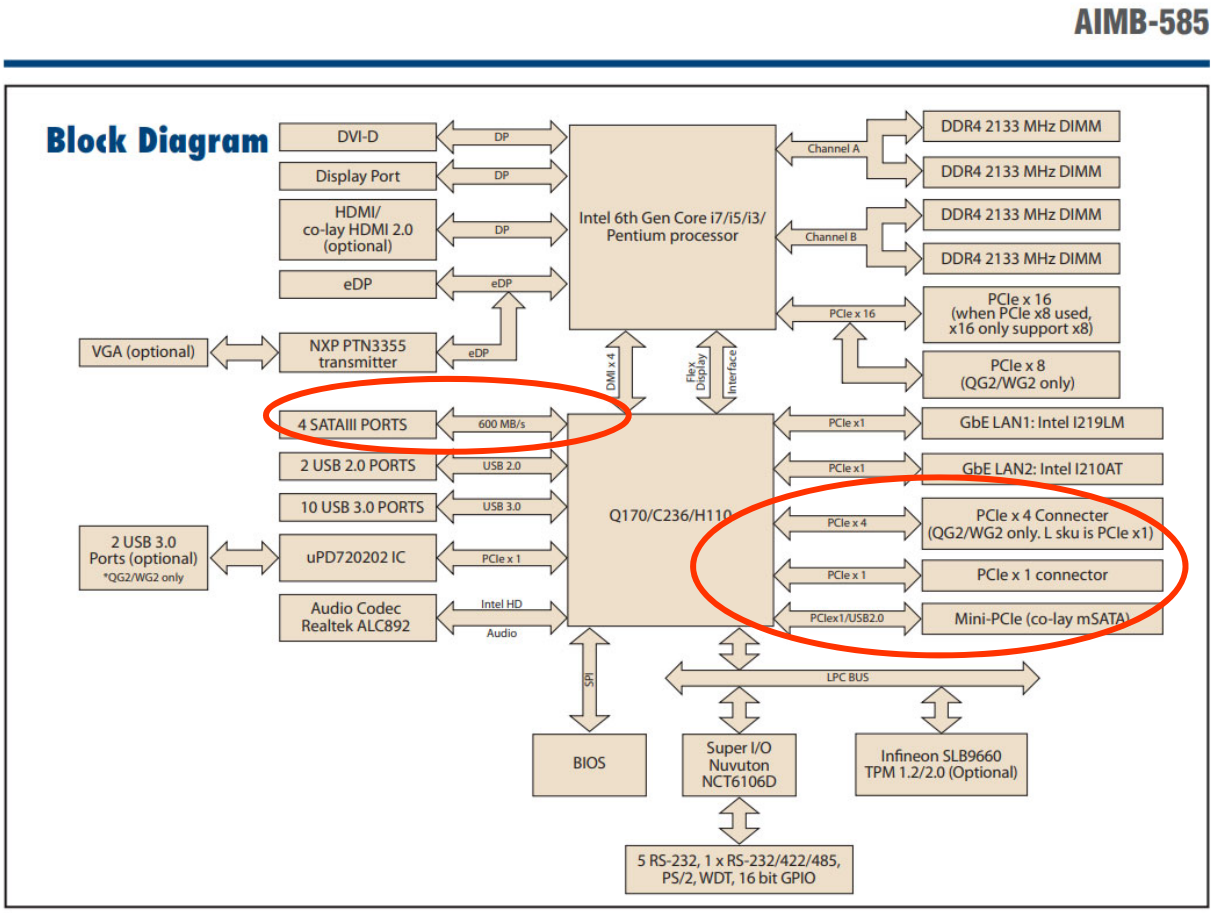
TU.*_ga_CFPK80LF7Y*MTcwMjAzMTM4NS45LjEuMTcwMjAzMTUxOS41My4wLjA

The AIMB-585 has or may be configured with a mass storage HDD or SSD coupled to the CPU using PCIe or SATA, both of which constitute LVDS channels with multiple lanes.



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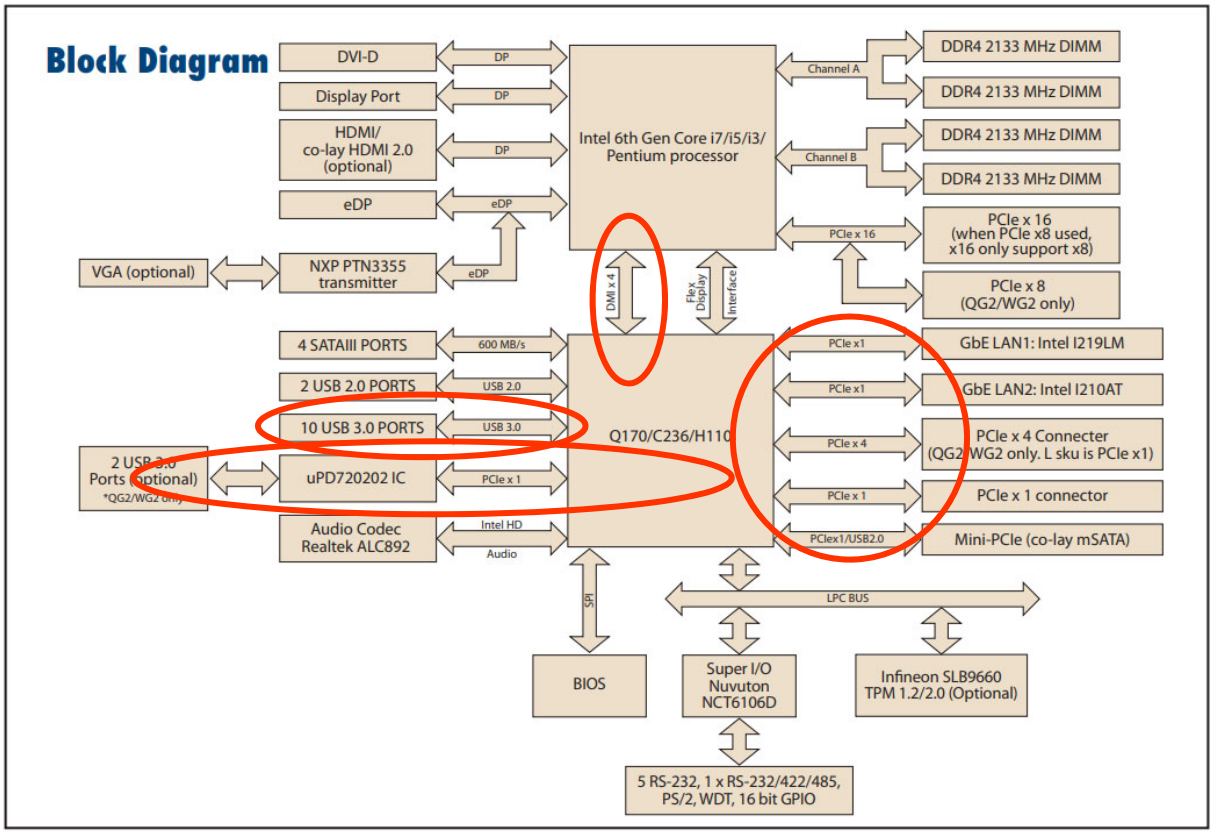
76. The AIMB-585 is connected to an Intel C236 chipset which is a peripheral bridge connected to the CPU module using Intel's DMI channels. Because the C236 is coupled to PCIe, USB 3.x, and other interface connections, they necessarily have integrated interface controllers to control data transmission through those interfaces.



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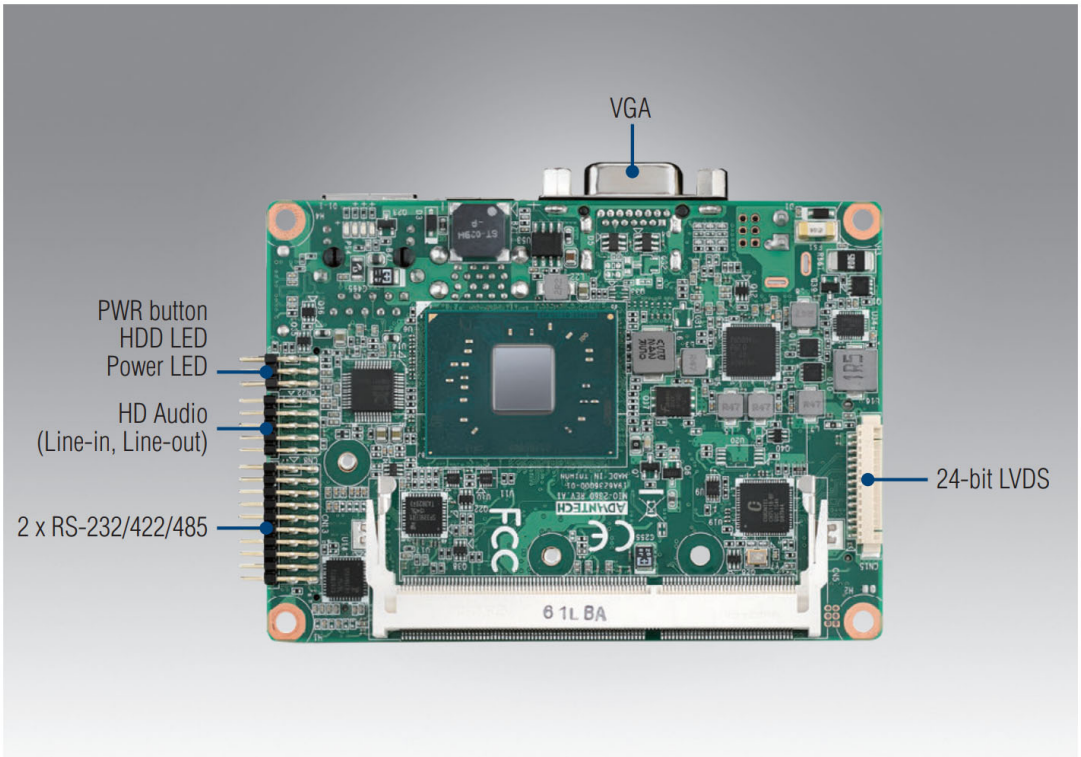
77. On information and belief, Advantech or another party performs the foregoing manufacturing steps (e.g., connecting components to each other on a motherboard via LVDS channels) outside the United States to make at least certain of the Accused Servers, and Advantech then imports those Accused Servers into the United States to be marketed and sold.

The Accused PCs

78. On information and belief, all of the Accused PCs are configured and operate in substantially the same way as explained below using the MIO-2360 as an example for illustrative purposes.[30]

79. The MIO-2360 is an embedded single board computer.



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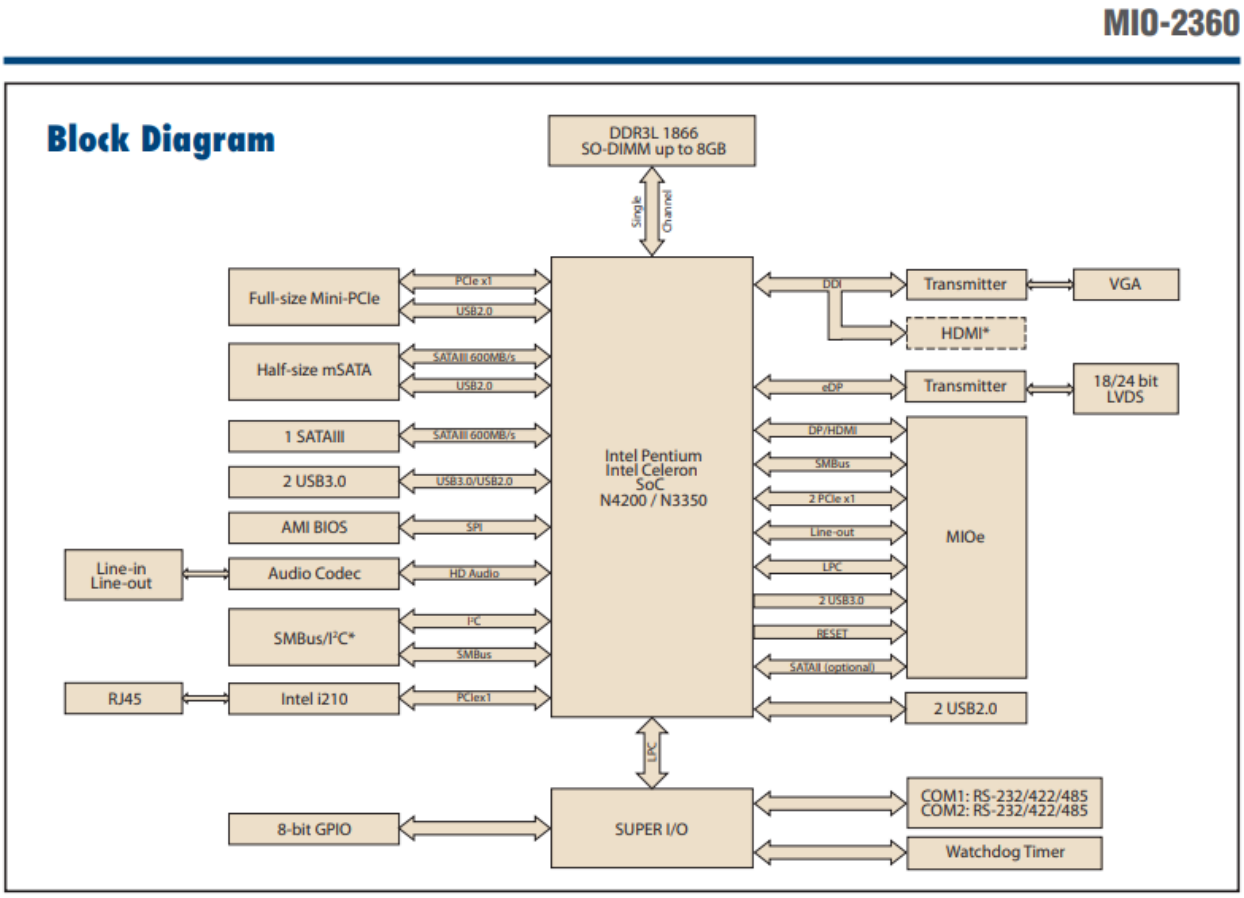
[30] As explained with regard to the Accused Server products, it is understood on information and belief that Accused PC products, even when advertised as a single-board computer, are ordinarily installed in enclosures with power sources as part of Advantech's manufacturing and configuration process.

80. The MIO-2360 uses an Intel® processor, such as a 2.4GHz dual-core Intel® Celeron® N3550 processor, which is mounted on a motherboard.

Part Number	CPU	Max. frequency	Core
MIO-2360N-S2A2	Pentium N4200E	2.50 GHz	4
MIO-2360N-S1A2	Celeron N3350E	2.40 GHz	2
MIO-2360AX-S8A2	Atom E3940	1.80 GHz	4



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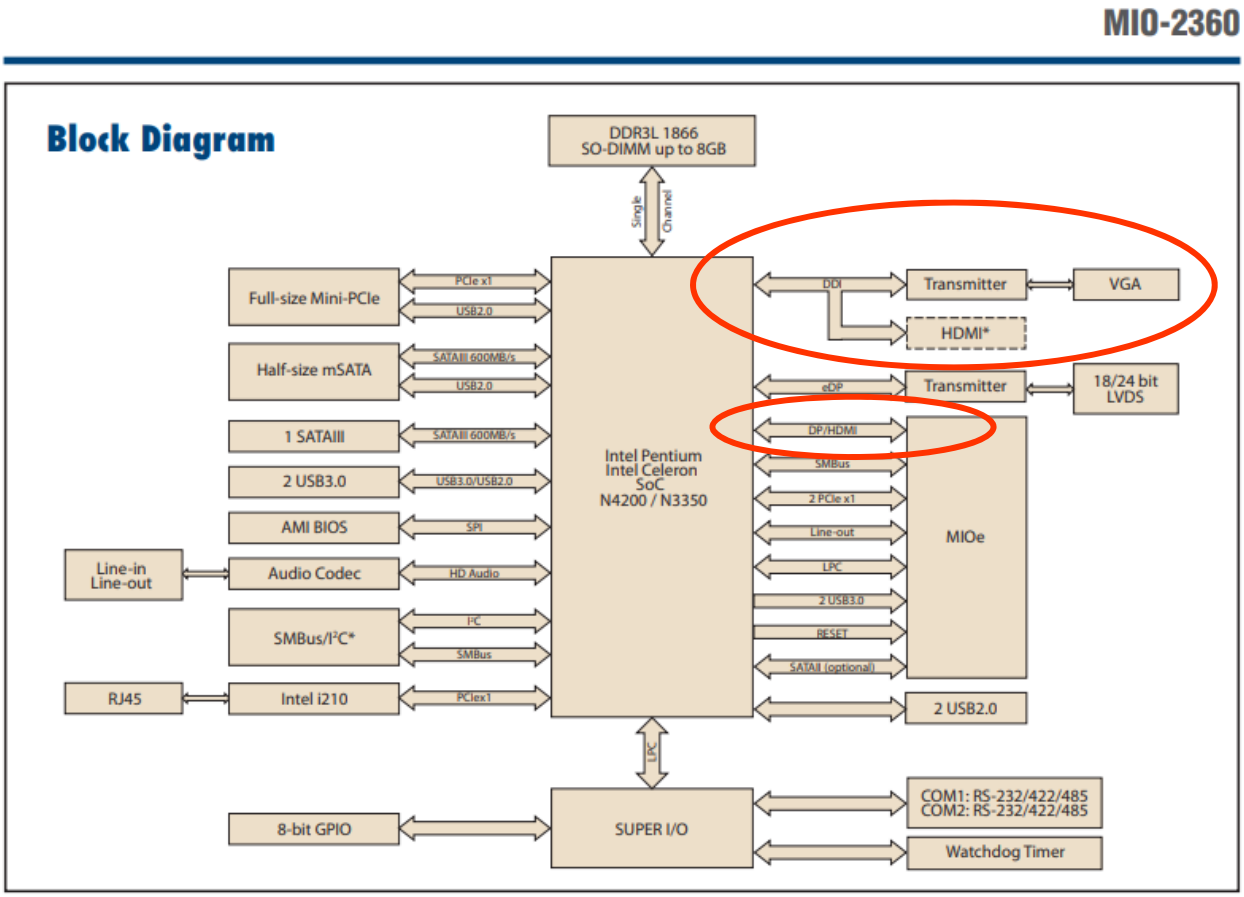
81. The Intel® Celeron® processors integrate the central processing unit (CPU) with a graphics subsystem and an interface controller on a single chip. This may be seen below by at

least the processor's direct output of video signals. As discussed *supra*, Intel's DDI output interface is used when a processor has integrated graphics, and may be configured to output, *inter alia*, HDMI video signal data.



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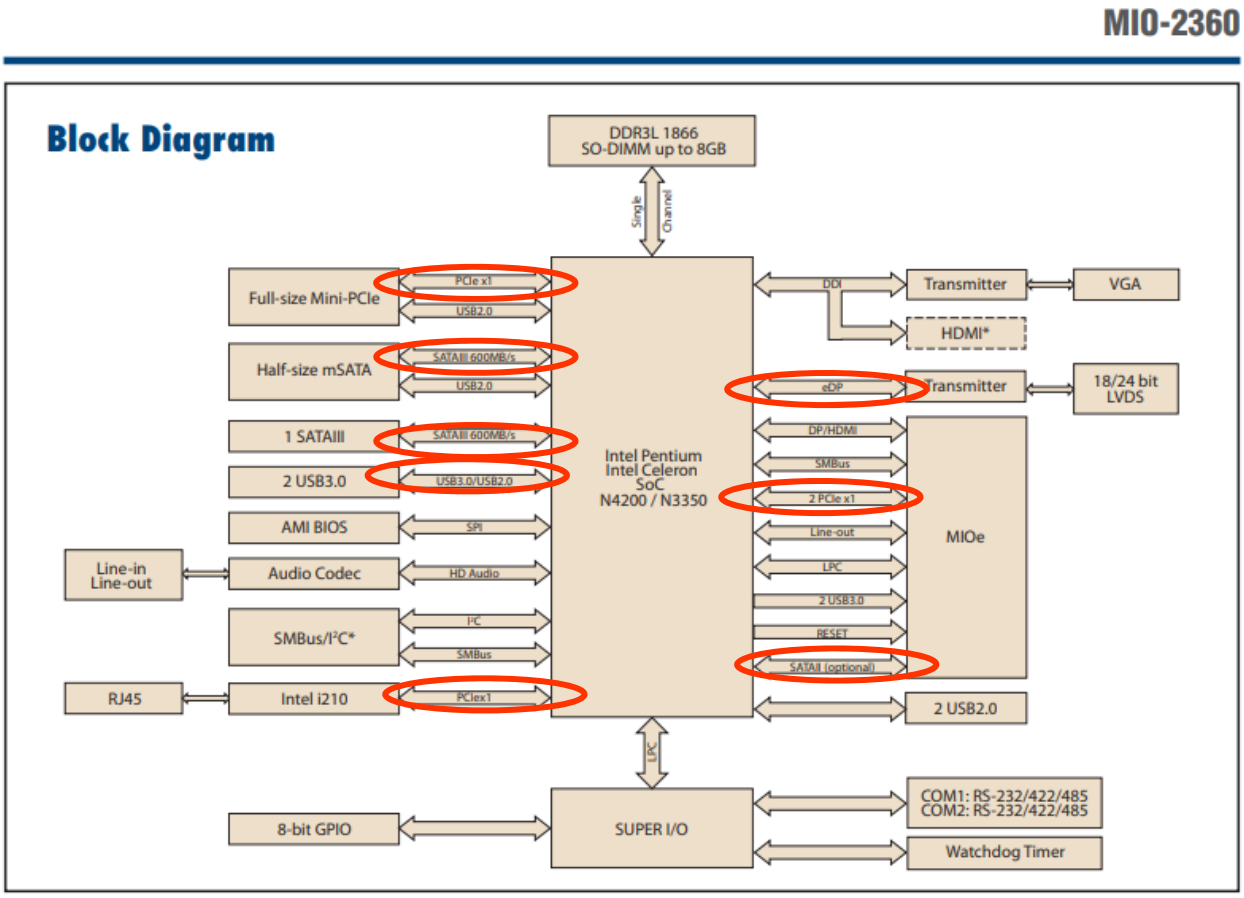
82. The Intel Celeron processors integrate one or more integrated interface controllers, such as to drive the signal outputs of the processor, including PCIe, SATA, and USB 3.x channels connected to the processor.

83. The Intel processors employed in the MIO-2360 connect directly to a variety of LVDS channels that convey data bits in a serial stream using unidirectional pairs of lanes transmitting data in opposite directions, including PCIe, eDP, SATA, and USB 3.x channels, and the directly-connected PCIe or SATA channels connect the CPU to a mass storage device.



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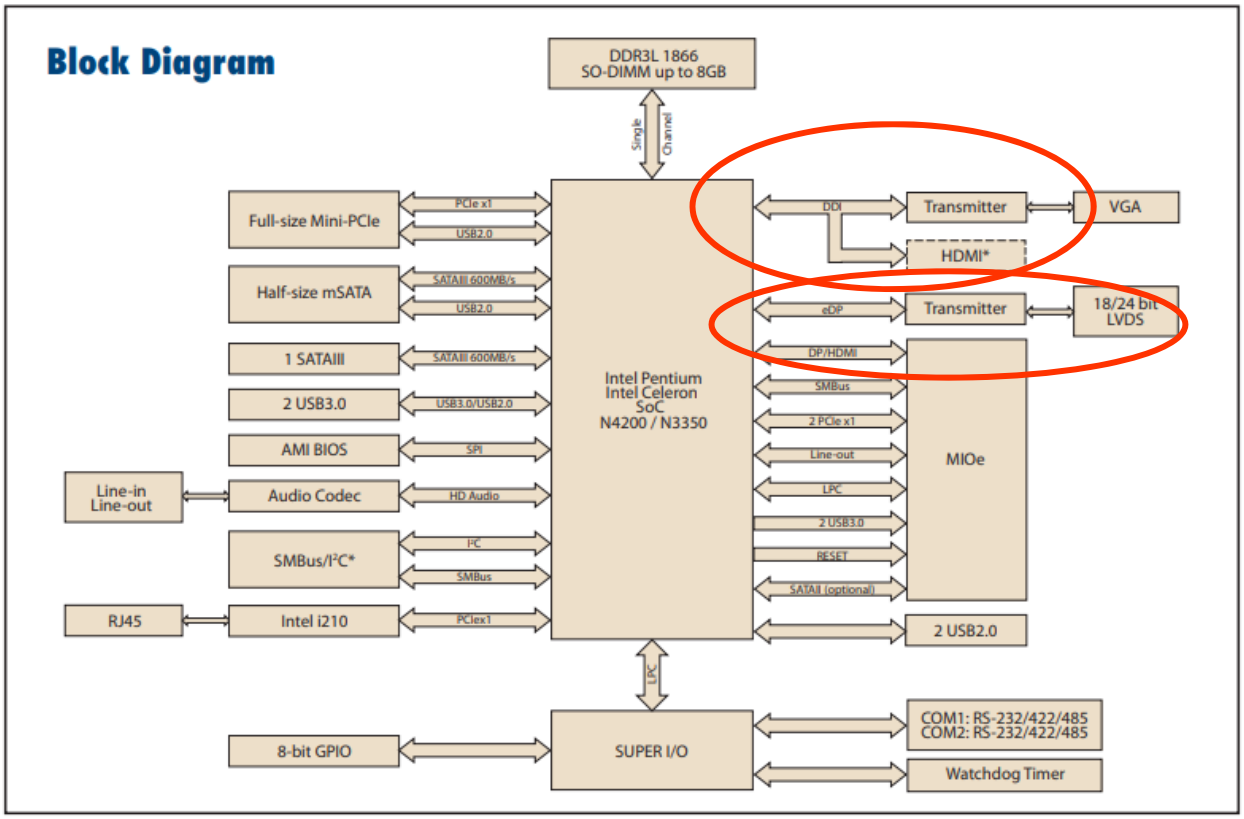
84. The Intel processors employed in the MIO-2360 also connect directly to differential signal channels that output digital video signals through a connector, including at least HDMI.



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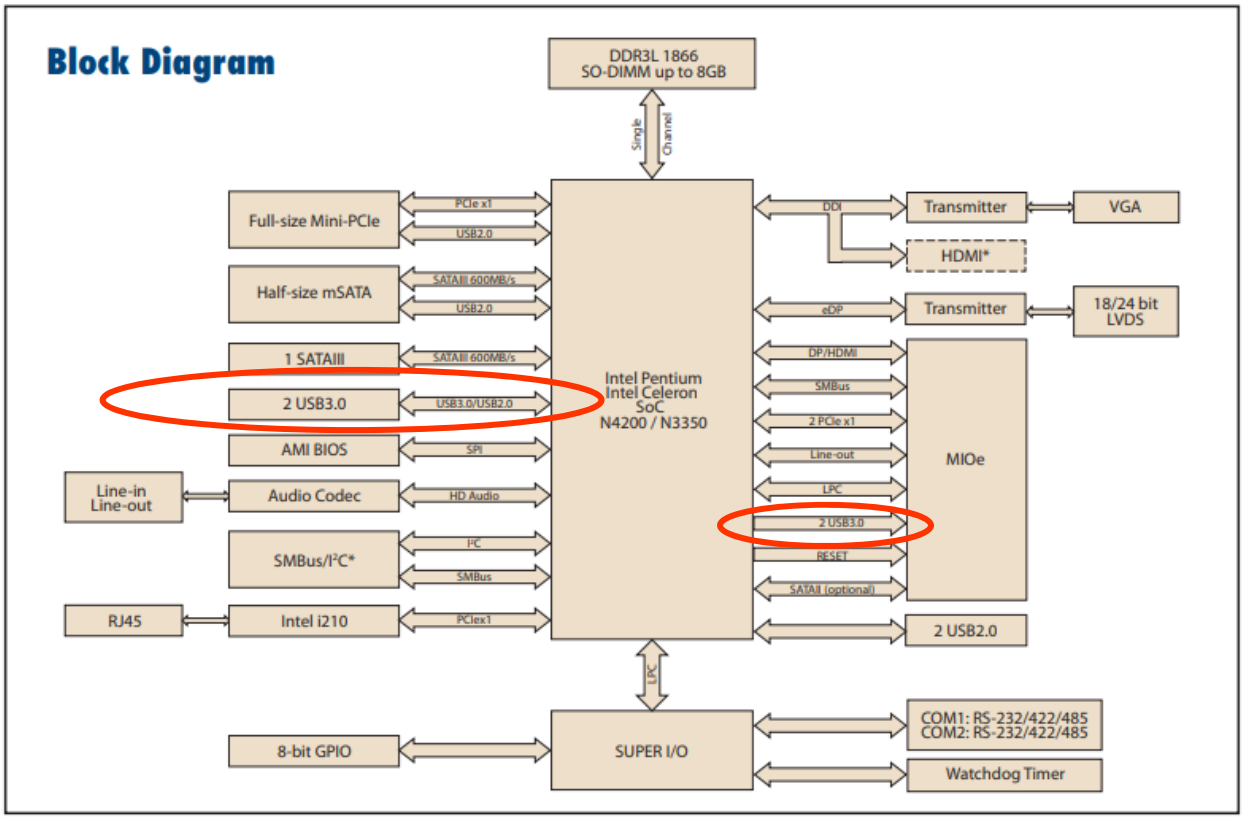
85. The Intel processors employed in the MIO-2360 also connect to LVDS channels that convey USB data packets through pairs of unidirectional differential signal paths in opposite directions—USB 3.x ports.



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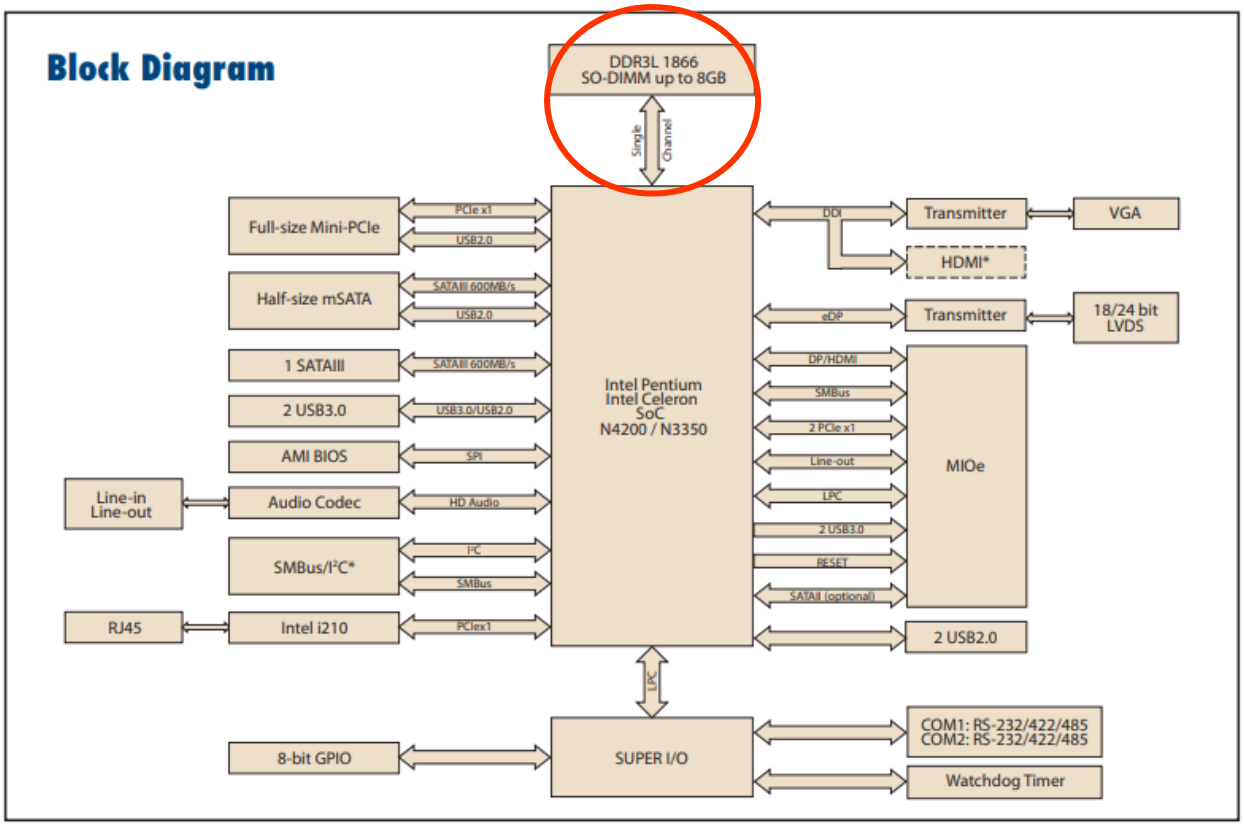
86. The MIO-2360 has DDR4 system memory connected directly to the CPU.



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87. The MIO-2360 is configured with mass storage HDD or SSD coupled to the CPU and/or clots/connectors to couple to HDDs and SSDs.

Storage	mSATA	1 x half size mini PCIe slot
	SATA	1, up to 6Gb/s (600MB/s)

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88. The Intel processors used in the MIO-2360 have an integrated chipset which is a peripheral bridge. Because the peripheral bridge is coupled to PCIe, USB 3.x, and other interface connections, they necessarily have integrated interface controllers to control data transmission through those interfaces.

Processor System	CPU	Pentium N4200	Intel Celeron N3350
	Frequency	1.10 GHz (Quad-Core)	1.10 GHz (Dual-Core)
	L2 Cache	2 MB	
	Max Turbo Frequency	2.50 GHz	2.40 GHz
	System Chipset	Intel Celeron / Atom SoC processor integrated	
	BIOS	AMI EFI 64 Mbit	

https://advdownload.advantech.com/productfile/PIS/MIO-2360/file/MIO-2360_DS(111623)20231116150907.pdf?_gl=1*ud2zdt*_ga*ODY5NTI0MTU0LjE3MDI1MDM1NjE.*_ga_CFPK80LF7Y*MTcwMjUwODk2MC4xLjEuMTcwMjUwOTAwNC4xNi4wLjA

89. On information and belief, Advantech or another party performs the foregoing manufacturing steps (*e.g.*, connecting CPUs and other components to one another via recited LVDS channels) outside the United States to make at least certain of the Accused PCs, and Advantech then imports those Accused PCs into the United States to be marketed and sold.

ACQIS Provided Advantech Notice of its Infringement

90. On or around April 30, 2013, ACQIS notified Advantech, pursuant to 35 U.S.C. § 287(a), of certain of ACQIS's patents and Advantech's likely infringement thereof based on the Accused Advantech Products. While this notice letter explicitly named other of ACQIS' patents than those asserted in this action, this notice letter warned Advantech that its patent portfolio was growing and that ACQIS "expect[s] our success to continue with other patents and applications being prosecuted or reexamined within the patent office." At least the '797 patent application was then being prosecuted (and the application had published), so Advantech was placed on notice of these nascent patent rights as of this date. The notice letter described the applicability of the

ACQIS Patents at least to Advantech's IPC and Rackmount server, X86-based Network Application Platforms, single board computer, ATCA, MicroTCA, and Compact PCI products. ACQIS also described the enforcement history of ACQIS's patent portfolio, and specifically noted a prior lawsuit enforcing ACQIS Patents related to the presently-asserted ACQIS Patents, which resulted in a significant jury verdict against IBM.

91. ACQIS invited Advantech to discuss potential licensing arrangements to allow Advantech to continue to utilize the patented technologies in the ACQIS patent portfolio, including the ACQIS Patents.

92. Advantech did not make a meaningful response to ACQIS's April 30, 2013 letter and continued to make, import, and sell the Accused Advantech Products identified in ACQIS's letter in willful violation of ACQIS' patent rights, or at the very least in reckless disregard of ACQIS' patent rights.

93. Upon receiving actual notice of the ACQIS Patents and how they apply to Advantech's computer products, Advantech at the very least ignored the notice and chose to remain willfully blind to its own infringement and ACQIS patent applications in reexamination and prosecution.

94. Advantech's choice to ignore ACQIS, the ACQIS Patents, and ACQIS' offer to engage in a licensing arrangement, and instead to continue making and selling the infringing Accused Advantech Products, is egregious and exceptional.

95. Advantech's conduct constitutes willful infringement of the ACQIS Patent rights in at least the '797 patent (*see, e.g.*, 35 U.S.C. § 154(d)(1)), beginning at least as early as April 30, 2013.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 9,703,750

96. ACQIS incorporates by this reference the allegations set forth every preceding paragraph of this Complaint in support of its first cause of action as though fully set forth herein.

97. Pursuant to 35 U.S.C. § 282, the claims of the ’750 patent are presumed valid.

98. In view of the foregoing facts and allegations, Advantech has directly infringed one or more claims of the ’750 patent in violation of 35 U.S.C. § 271(g) by importing into the United States the Accused Advantech Products that were manufactured abroad by one or more of the methods claimed in the ’750 patent.

99. The Accused Advantech Products are not trivial or nonessential components of other products and are not materially changed by subsequent processes.

100. Advantech’s infringement of the ’750 patent through its importation offers to sell, and/or sales in the United States of the **Accused Servers** is shown by way of the exemplary AIMB-585 as set forth in paragraphs 67-77 above, which demonstrates infringement of at least claim 50 of the ’750 patent by showing:

(a) the AIMB-585 is a computer;

(b) the AIMB-585 has an integrated central processing unit (CPU) and graphics controller in a single chip, because the Advantech XX uses a 6th Generation Intel® Core Processor, which includes integrated graphics as a single chip; Advantech installs this chip into the motherboard of this product during manufacture;

(c) Advantech or another party connects a first unidirectional, differential signal pair channel directly to the integrated CPU and graphics controller to output digital video data—this includes at least the DDI channels discussed *supra*;

(d) Advantech or another party provides a connector for external peripheral data communication of the computer—this includes various of the ports of the AIMB-585 identified *supra;*

(e) Advantech provides a Low Voltage Differential Signal (LVDS) channel to convey Universal Serial Bus (USB) protocol through the connector, the first LVDS channel comprising two unidirectional, serial bit channels that transmit data in opposite directions—this includes each of the USB 3.x channels of the Advantech AIMB-585 identified *supra*.

101. On information and belief, the Accused Servers are in relevant part substantially similar to the exemplary Advantech AIMB-585, in particular with regard to the manner in which the Accused Servers include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of the manner in which Advantech infringes the claims of the '750 patent as to each of the Accused Servers.

102. ACQIS' infringement allegations against the Accused Servers are not limited to claim 50 of the '750 patent, and additional infringed claims will be identified through infringement contentions and discovery.

103. In view of the foregoing facts and allegations, including paragraphs 78-89 above, Advantech has directly infringed one or more claims of the '750 patent in violation of 35 U.S.C. § 271 (g) by importing into the United States the Accused Advantech PCs that were manufactured abroad by one or more of the methods claimed in the '750 patent.

104. The Accused Advantech PCs are not trivial or nonessential components of other products and are not materially changed by subsequent processes.

105. Advantech's infringement of the '750 patent through its importation offers to sell, and/or sales in the United States of the **Accused PCs** is shown by way of the exemplary AIMB-585 as set forth in paragraphs 78-89 above, which demonstrates infringement of at least claim 50 of the '750 patent by showing:

(f) the MIO-2360 is a computer;

(g) the MIO-2360 has an integrated central processing unit (CPU) and graphics controller in a single chip, because the MIO-2360 uses an Intel Celeron® N3550 processor, which includes integrated graphics as a single chip; Advantech or another party installs this chip into the motherboard of this product during manufacture;

(h) Advantech or another party connects a first unidirectional, differential signal pair channel directly to the integrated CPU and graphics controller to output digital video data—this includes at least the DDI channels discussed *supra*;

(i) Advantech provides a connector for external peripheral data communication of the computer—this includes various of the ports of the MIO-2360 identified *supra*

(a) Advantech provides a Low Voltage Differential Signal (LVDS) channel to convey Universal Serial Bus (USB) protocol through the connector, the first LVDS channel comprising two unidirectional, serial bit channels that transmit data in opposite directions—this includes each of the USB 3.x channels of the MIO-2360 identified *supra*.

106. On information and belief, the Accused PCs are in relevant part substantially similar to the exemplary MIO-2360, in particular with regard to the manner in which the Accused PCs include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of the manner in which Advantech infringes the claims of the '750 patent as to each of the Accused PCs.

107. ACQIS' infringement allegations against the Accused PCs are not limited to claim 50 of the '768 patent, and additional infringed claims will be identified through infringement contentions and discovery.

108. The above-described acts of infringement committed by Advantech have caused injury and damage to ACQIS and ACQIS' licensees.

109. ACQIS is entitled to recover all damages sustained as a result of Advantech's wrongful acts of infringement, but in no event less than a reasonable royalty pursuant to 35 U.S.C. § 284.

COUNT II
INFRINGEMENT OF U.S. PATENT NO. 8,977,797

110. ACQIS incorporates by this reference the allegations set forth in all foregoing paragraphs of this Complaint in support of its second cause of action as though fully set forth herein.

111. Pursuant to 35 U.S.C. § 282, the claims of the '797 patent are presumed valid.

112. In view of the foregoing facts and allegations, Advantech has directly infringed one or more claims of the '797 patent in violation of 35 U.S.C. § 271 (g) by importing into the United States the Accused Advantech Products that were manufactured abroad by one or more of the methods claimed in the '797 patent.

113. The Accused Advantech Products are not trivial or nonessential components of other products and are not materially changed by subsequent processes.

114. Advantech's infringement of the '797 patent through its importation into the United States of the **Accused Servers** is shown by way of the exemplary AIMB-585 as set forth in paragraphs 67-77 above. These paragraphs demonstrate that the AIMB-585 was necessarily manufactured according to at least claim 36 of the '797 patent:

(a) Advantech or another party performs a method of improving data throughput on a motherboard when manufacturing the AIMB-585, which comprises a motherboard;

(b) when manufacturing the AIMB-585, Advantech or another party mounts an integrated CPU and interface controller as a single chip on the motherboard, because the Intel processor employed in the AIMB-585 includes interface controllers (*e.g.*, to drive/control DMI/PCIe channels) and the CPU integrated as a single chip;

(c) when manufacturing the AIMB-585, Advantech or another party connects an LVDS channel directly to an interface controller integrated with the CPU, which LVDS channel uses two unidirectional, serial channels to transmit data in opposite directions because the AIMB-585 has PCIe channels and an DMI interface directly connected to the interface controller;

(d) when manufacturing the AIMB-585, Advantech or another party increases data throughput in the serial channels by providing each channel with multiple differential signal line pairs, because the PCIe and DMI channels have multiple pairs of differential signal lanes;

(e) when manufacturing the AIMB-585, Advantech or another party configures the interface controller to adapt to different numbers of differential signal line pairs to convey encoded address and data bits of a PCI bus transaction in serial form, because the interface controller integrated with the CPU are configured to convey PCIe data signals through PCIe channels having differential signal line pairs; and

(f) when manufacturing the AIMB-585, Advantech or another party couples the integrated CPU and interface device to a peripheral device such as (bot not limited to) a mass storage device, which is attached to the motherboard through a PCIe or other

LVDS channel.

115. On information and belief, the Accused Servers are in relevant part substantially similar to the exemplary AIMB-585, in particular with regard to the manner in which the Accused Servers include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of the manner in which Advantech infringes the claims of the '797 patent as to each of the Accused Servers.

116. ACQIS' infringement allegations against the Accused Servers are not limited to claim 36 of the '797 patent, and additional infringed claims will be identified through infringement contentions and discovery.

117. Advantech's infringement of the '797 patent through its importation into the United States of the **Accused PCs** is shown by way of the exemplary Advantech MIO-2360 as set forth in paragraphs 78-89 above. These paragraphs demonstrate that the Advantech MIO-2360 was necessarily manufactured abroad according to at least claim 36 of the '797 patent:

(a) Advantech or another party performs a method of improving data throughput on a motherboard when manufacturing the Advantech MIO-2360, which contains a motherboard;

(b) when manufacturing the Advantech MIO-2360, Advantech or another party mounts an integrated CPU and interface controller as a single chip on the motherboard, because the Intel processor employed in the Advantech MIO-2360 includes interface controllers (*e.g.*, to drive/control PCIe channels) and the CPU integrated as a single chip;

(c) when manufacturing the Advantech MIO-2360, Advantech or another party connects an LVDS channel directly to an interface controller integrated with the CPU, which

LVDS channel uses two unidirectional, serial channels to transmit data in opposite directions because the Advantech MIO-2360 has PCIe channels directly connected to the interface controller to manage PCIe signals;

(d) when manufacturing the Advantech MIO-2360, Advantech or another party increases data throughput in the serial channels by providing each channel with multiple differential signal line pairs, because the PCIe channels have multiple pairs of differential signal lanes;

(e) when manufacturing the Advantech MIO-2360, Advantech or another party configures the interface controller to adapt to different numbers of differential signal line pairs to convey encoded address and data bits of a PCI bus transaction in serial form, because the interface controller integrated with the CPU are configured to convey PCIe data signals through PCIe channels having differential signal line pairs; and

(f) when manufacturing the Advantech MIO-2360, Advantech or another party couples the integrated CPU and interface device to a peripheral device such as (but not limited to) a mass storage device, which is attached to the motherboard through a PCIe or other LVDS channels.

118. On information and belief, the Accused PCs are in relevant part substantially similar to the exemplary Advantech MIO-2360, in particular with regard to the manner in which the Accused PCs include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of the manner in which Advantech infringes the claims of the ’797 patent as to each of the Accused PCs.

119. ACQIS' infringement allegations against the Accused PCs are not limited to claim 36 of the '797 patent, and additional infringed claims will be identified through infringement contentions and discovery.

120. The above-described acts of infringement committed by Advantech have caused injury and damage to ACQIS and ACQIS' licensees.

121. ACQIS is entitled to recover all damages sustained as a result of Advantech's wrongful and willful acts of infringement, but in no event less than a reasonable royalty pursuant to 35 U.S.C. § 284.

COUNT III
INFRINGEMENT OF U.S. PATENT NO. 9,529,769

122. ACQIS incorporates by this reference the allegations set forth in all foregoing paragraphs of this Complaint in support of its third cause of action as though fully set forth herein.

123. Pursuant to 35 U.S.C. § 282, the claims of the '769 patent are presumed valid.

124. In view of the foregoing facts and allegations, Advantech has directly infringed one or more claims of the '769 patent in violation of 35 U.S.C. § 271 (g) by importing into the United States the Accused Advantech Products that were manufactured abroad by one or more of the methods claimed in the '769 patent.

125. The Accused Advantech Products are not trivial or nonessential components of other products and are not materially changed by subsequent processes.

126. Advantech's infringement of the '769 patent through its importation into, offers to sell, or sales in, the United States of the **Accused Servers** is shown by way of the exemplary AIMB-585 as set forth in paragraphs 67-77 above. These paragraphs demonstrate that the AIMB-585 was necessarily manufactured abroad according to at least claim 19 of the '769 patent:

(a) Advantech or another party performs a method of improving external peripheral data communication in a computer when manufacturing the AIMB-585;

(b) when manufacturing the AIMB-585, Advantech or another party obtains an integrated CPU and graphics controller as a single chip, because the AIMB-585 uses a 6th Generation Intel® Core™ Processor;

(c) when manufacturing the AIMB-585, Advantech or another party connects a unidirectional signal channel directly to the integrated CPU and graphics controller to output digital video data, because the 6th Generation Intel® Core™ Processors employed in the AIMB-585 directly utilize DDI channels to output DVI, DisplayPort, and HDMI from the graphics controller integrated into the CPU;

(d) when manufacturing the AIMB-585, Advantech or another party provides a connector for external peripheral data communication, because the AIMB-585 has a variety of connectors for external peripherals, including USB 3.x connectors;

(e) when manufacturing the AIMB-585, Advantech or another party provides an LVDS channel to convey USB protocol data through a connector that uses two unidirectional, serial bit channels that transmit data in opposite directions, because the AIMB-585 has a USB 3.x connectors that convey USB 3.x data; and

(f) when manufacturing the AIMB-585, Advantech or another party provides a second LVDS channel to convey digital video data through a connector, at least because the AIMB-585 has DisplayPort and DVI outputs ports to output digital video data signals.

127. On information and belief, the Accused Servers are in relevant part substantially similar to the exemplary AIMB-585, in particular with regard to the manner in which the Accused Servers include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of

the manner in which Advantech infringes the claims of the '769 patent as to each of the Accused Servers.

128. Advantech's infringement of the '769 patent through its importation into, offers to sell, or sales in, the United States of the **Accused PCs** is shown by way of the exemplary MIO-2360 as set forth in paragraphs 78-89 above. These paragraphs demonstrate that the MIO-2360 was necessarily manufactured abroad according to at least claim 19 of the '769 patent:

(g) Advantech or another party performs a method of improving external peripheral data communication in a computer when manufacturing the MIO-2360;

(h) when manufacturing the MIO-2360, Advantech or another party obtains an integrated CPU and graphics controller as a single chip, because the MIO-2360 uses a Celeron Processor having integrated graphics;

(i) when manufacturing the MIO-2360, Advantech or another party connects a unidirectional signal channel directly to the integrated CPU and graphics controller to output digital video data, at least because the Celeron Processors employed in the MIO-2360 directly utilize DDI channels to output HDMI from the graphics controller integrated into the CPU;

(j) when manufacturing the MIO-2360, Advantech or another party provides a connector for external peripheral data communication, because the MIO-2360 has a variety of connectors for external peripherals, including USB 3.x connectors;

(k) when manufacturing the MIO-2360, Advantech or another party provides an LVDS channel to convey USB protocol data through a connector that uses two unidirectional, serial bit channels that transmit data in opposite directions, because the MIO-2360 has a USB 3.x connectors that convey USB 3.x data; and

(l) when manufacturing the MIO-2360, Advantech or another party provides a second LVDS channel to convey digital video data through a connector, at least because the AIMB-585 has eDP and LVDS video outputs.

129. On information and belief, the Accused Servers are in relevant part substantially similar to the exemplary MIO-2360, in particular with regard to the manner in which the Accused Servers include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of the manner in which Advantech infringes the claims of the '769 patent as to each of the Accused Servers.

130. ACQIS' infringement allegations against the Accused Servers are not limited to claim 19 of the '769 patent, and additional infringed claims will be identified through infringement contentions and discovery.

131. The above-described acts of infringement committed by Advantech have caused injury and damage to ACQIS and ACQIS' licensees.

132. ACQIS is entitled to recover all damages sustained as a result of Advantech's wrongful acts of infringement, but in no event less than a reasonable royalty pursuant to 35 U.S.C. § 284.

COUNT IV
INFRINGEMENT OF U.S. PATENT NO. RE45,140

133. ACQIS incorporates by this reference the allegations set forth in all foregoing paragraphs of this Complaint in support of its fourth cause of action as though fully set forth herein.

134. Pursuant to 35 U.S.C. § 282, the claims of the '140 patent are presumed valid.

135. In view of the foregoing facts and allegations, Advantech has directly infringed one or more claims of the '140 patent in violation of 35 U.S.C. § 271 (g) by importing into the United

States the Accused Advantech Products that were manufactured abroad by one or more of the methods claimed in the ’140 patent.

136. The Accused Advantech Products are not trivial or nonessential components of other products and are not materially changed by subsequent processes.

137. Advantech’s infringement of the ’140 patent through its importation into, and/or use, offers to sell, or sales in, the United States of the **Accused Servers** is shown by way of the exemplary AIMB-585 as set forth in paragraphs 67-77 above. These paragraphs demonstrate that the AIMB-585 was necessarily manufactured abroad according to at least claim 35 of the ’140 patent:

(a) Advantech or another party performs a method of improving performance of a computer when manufacturing the AIMB-585;

(b) when manufacturing the AIMB-585, Advantech or another party obtains an integrated CPU and graphics controller as a single chip, because the AIMB-585 uses a 6th Generation Intel® Core™ Processor;

(c) when manufacturing the AIMB-585, Advantech or another party connects an LVDS channel directly to the integrated CPU and graphics controller that uses two unidirectional, serial bit channels to transmit data in opposite directions, because the 6th Generation Intel® Core™ Processors employed in the AIMB-585 directly connect to PCIe and DMI channels;

(d) when manufacturing the AIMB-585, Advantech or another party connects a differential signal channel directly to the integrated CPU and graphics controller to output digital video data, because the 9th Generation Intel® Core™ Processors employed in the AIMB-585 connect to DDI and/or PCIe channels connected to

discrete graphics;

(e) when manufacturing the AIMB-585, Advantech or another party provides a connector for external peripheral data communication, because the AIMB-585 has a variety of connectors for external peripherals; and

(f) when manufacturing the AIMB-585, Advantech or another party provides a second LVDS channel using two unidirectional, serial bit channels to transmit data in opposite directions through the connector, because the AIMB-585 has Thunderbolt and USB 3.x connectors capable of supporting USB3.x and Thunderbolt data signals.

138. On information and belief, the Accused Servers are in relevant part substantially similar to the exemplary AIMB-585, in particular with regard to the manner in which the Accused Servers include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of the manner in which Advantech infringes the claims of the ’140 patent as to each of the Accused Servers.

139. ACQIS’ infringement allegations against the Accused Servers are not limited to claim 35 of the ’140 patent, and additional infringed claims will be identified through infringement contentions and discovery.

140. Advantech’s infringement of the ’140 patent through its importation, offers to sell, or sales in the United States of the **Accused PCs** is shown by way of the exemplary Advantech MIO-2360 as set forth in paragraphs 78-89 above. These paragraphs demonstrate that the MIO-2360 was necessarily manufactured abroad according to at least claim 35 of the ’140 patent:

(a) Advantech or another party performs a method of improving performance of a computer when manufacturing the MIO-2360;

(b) when manufacturing the MIO-2360, Advantech or another party obtains an integrated CPU and graphics controller as a single chip, because the MIO-2360 uses a Celeron Processor having integrated graphics;

(c) when manufacturing the MIO-2360, Advantech or another party connects an LVDS channel directly to the integrated CPU and graphics controller that uses two unidirectional, serial bit channels to transmit data in opposite directions, because the Celeron Processors employed in the MIO-2360 directly connect to, for example, PCIe channels;

(d) when manufacturing the MIO-2360, Advantech or another party connects a differential signal channel directly to the integrated CPU and graphics controller to output digital video data, because (and not by way of limitation) the Celeron Processors employed in the MIO-2360 connect to DDI channels to output HDMI signals;

(e) when manufacturing the MIO-2360, Advantech or another party provides a connector for external peripheral data communication, because the Advantech MIO-2360 has a variety of connectors for external peripherals, including USB 3.x ports; and

(f) when manufacturing the MIO-2360, Advantech or another party provides a second LVDS channel using two unidirectional, serial bit channels to transmit data in opposite directions through the connector, because the MIO-2360 has other USB 3.x ports.

141. On information and belief, the Accused PCs are in relevant part substantially similar to the exemplary MIO-2360 in particular with regard to the manner in which the Accused PCs include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of the manner in which Advantech infringes the claims of the ’140 patent as to each of the Accused PCs.

142. ACQIS' infringement allegations against the Accused PCs are not limited to claim 35 of the '140 patent, and additional infringed claims will be identified through infringement contentions and discovery.

143. The above-described acts of infringement committed by Advantech have caused injury and damage to ACQIS and ACQIS' licensees.

144. ACQIS is entitled to recover all damages sustained as a result of Advantech's wrongful acts of infringement, but in no event less than a reasonable royalty pursuant to 35 U.S.C. § 284.

COUNT V
INFRINGEMENT OF U.S. PATENT NO. RE44,654

145. ACQIS incorporates by this reference the allegations set forth all foregoing paragraphs of this Complaint in support of its fifth cause of action as though fully set forth herein.

146. Pursuant to 35 U.S.C. § 282, the claims of the '654 patent are presumed valid.

147. In view of the foregoing facts and allegations, Advantech has directly infringed one or more claims of the '654 patent in violation of 35 U.S.C. § 271 (g) by importing Accused Advantech Products in the United States which were manufactured abroad according to ACQIS' patented processes.

148. The Accused Advantech Products made using the methods claimed in the '654 patent are not trivial or nonessential components of other products and are not materially changed by subsequent processes.

149. Advantech's infringement of the '654 patent through its importation, offers to sell, or sales in, the United States of the **Accused Servers** is shown by way of the exemplary AIMB-585 as set forth in paragraphs 67-77 above. These paragraphs demonstrate that the AIMB-585 was necessarily manufactured according to at least claim 23 of the '654 patent:

(a) Advantech or another party performs a method of increasing data communication speed of a computer when manufacturing the AIMB-585;

(b) when manufacturing the AIMB-585, Advantech or another party connects a CPU directly to a peripheral bridge on a printed circuit board, because the AIMB-585 uses an Intel core CPU directly connected to the Intel PCH via a DMI connection;

(c) when manufacturing the AIMB-585, Advantech or another party connects an LVDS channel directly to the peripheral bridge (PCH), which uses two unidirectional, serial channels to transmit data in opposite directions, because the AIMB-585 has PCIe channels and DMI channels directly connected to the Intel PCH;

(d) when manufacturing the AIMB-585, Advantech or another party provides a connector to connect the computer to a console, because the AIMB-585 has a variety of connector ports including USB 3.x and a Thunderbolt port;

(e) when manufacturing the AIMB-585, Advantech or another party provides a second LVDS channel using two unidirectional, serial channels to transmit data in opposite directions through the connector to the console, because the AIMB-585 has USB 3.x and Thunderbolt ports capable of supporting USB 3.x and Thunderbolt data signals; and

(f) when manufacturing the AIMB-585, Advantech or another party enables the transmission of USB protocol data through the second LVDS channel via a Thunderbolt and USB 3.x channels and ports.

150. On information and belief, the Accused Servers are in relevant part substantially similar to the exemplary AIMB-585, in particular with regard to the manner in which the Accused Servers include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of

the manner in which Advantech infringes the claims of the ’654 patent as to each of the Accused Servers.

151. ACQIS’ infringement allegations against the Accused Servers are not limited to claim 23 of the ’654 patent, and additional infringed claims will be identified through infringement contentions and discovery.

152. Advantech’s infringement of the ’654 patent through its importation into, and/or use, offers to sell, or sales in, the United States of the **Accused PCs** is shown by way of the exemplary MIO-2360 as set forth in paragraphs 78-89 above. These paragraphs demonstrate that the MIO-2360 was necessarily manufactured according to at least claim 23 of the ’654 patent:

(a) Advantech or another party performs a method of increasing data communication speed of a computer when manufacturing the MIO-2360;

(b) when manufacturing the MIO-2360, Advantech or another party connects a CPU directly to a peripheral bridge on a printed circuit board, because the MIO-2360 uses an Intel Celeron CPU directly connected to an integrated peripheral bridge/chipset;

(c) when manufacturing the MIO-2360, Advantech or another party connects an LVDS channel directly to the peripheral bridge (PCH), which uses two unidirectional, serial channels to transmit data in opposite directions, because the MIO-2360 has PCIe channels directly connected to the integrated peripheral bridge/chipset;

(d) when manufacturing the MIO-2360, Advantech or another party provides a connector to connect the computer to a console, because the Advantech MIO-2360 has a variety of connector ports such as USB 3.x;

(e) when manufacturing the MIO-2360, Advantech or another party provides a second LVDS channel using two unidirectional, serial channels to transmit data in opposite

directions through the connector to the console, because the Advantech MIO-2360 has USB 3.x ports; and

(f) when manufacturing the MIO-2360, Advantech or another party enables the transmission of USB protocol data through the second LVDS channel via a USB 3.x port and channel.

153. On information and belief, the Accused PCs are in relevant part substantially similar to the exemplary MIO-2360 products, in particular with regard to the manner in which the Accused Servers include and utilize PCIe and/or USB 3.x functionality. This Section is thus illustrative of the manner in which Advantech infringes the claims of the '654 patent as to each of the Accused PCs.

154. ACQIS' infringement allegations against the Accused PCs are not limited to claim 23 of the '654 patent, and additional infringed claims will be identified through infringement contentions and discovery.

155. The above-described acts of infringement committed by Advantech have caused injury and damage to ACQIS and ACQIS' licensees.

156. ACQIS is entitled to recover all damages sustained as a result of Advantech's wrongful acts of infringement, but in no event less than a reasonable royalty pursuant to 35 U.S.C. § 284.

JURY TRIAL DEMANDED

ACQIS hereby demands a trial by jury on all claims and issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff ACQIS respectfully requests that this Court grant the following relief to ACQIS:

A. enter judgment that Advantech has infringed one or more claims of each of the ACQIS Patents through the importation into the United States of Accused Advantech Products made abroad using patented processes claimed in the ACQIS Patents;

B. enter judgement that such infringement is willful as to one or more of the ACQIS Patents;

C. enter judgment awarding ACQIS monetary relief pursuant to 35 U.S.C. § 284 in an amount adequate to compensate for Advantech's infringement of the ACQIS Patents to be determined at trial, but not less than a reasonable royalty, awarding ACQIS all pre- and post-judgment interest and costs, and awarding ACQIS enhanced damages for Advantech's willful infringement of one or more of the ACQIS Patents;

D. enter an order, pursuant to 35 U.S.C. § 285, declaring this an exceptional case and awarding to ACQIS its reasonable attorneys' fees; and

E. enter an order awarding to ACQIS such other and further relief, whether at law or in equity, that this Court seems just, equitable, and proper.

Dated: December 22, 2023.

Respectfully submitted,

By: */s/ Paige Arnette Amstutz*

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