

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

PANASONIC HOLDINGS CORPORATION,

*Plaintiff,*

v.

BROADCOM CORPORATION,

*Defendant.*

CASE NO. 6:22-cv-755

JURY DEMAND

**COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Panasonic Holdings Corporation (“Plaintiff” or “Panasonic”) hereby asserts the following claims for patent infringement against Broadcom Corporation (“Broadcom” or “Defendants”), and alleges as follows:

**INTRODUCTION**

1. The Panasonic Group consists of Panasonic Holdings Corporation, the holding company, and eight operating companies, and affiliates both within Japan and overseas. The Panasonic Group has been a worldwide leader in the development of diverse electronics technologies and solutions for more than 100 years. Panasonic has invested billions in research and development in the United States and throughout the world to advance technology in a broad variety of technical sectors. This R&D has contributed to the overall value and commercial success of Panasonic’s products worldwide.

2. Panasonic invested significant time, effort, and resources to develop the patented technology, including investing in and seeking patent protection on the inventions. But after years of hard work, Panasonic’s innovations have been simply used without permission by Defendant Broadcom Corporation.

3. As a result of Broadcom's infringement in this District, Panasonic has suffered, and will continue to suffer, significant damages and irreparable harm. This action is to remedy that infringement and to enforce Panasonic's patent rights against Broadcom.

### **NATURE OF THE ACTION**

4. This is a civil action for patent infringement under the patent laws of the United States, 35 U.S.C. § 1, *et seq.*

5. Broadcom has directly infringed and continues to infringe, has contributed to and continues to contribute to infringement of, and has induced and continues to induce infringement of one or more claims of U.S. Patent Nos. 8,253,492 ("the '492 Patent"), 9,218,485 ("the '485 Patent"), 9,524,404 ("the '404 Patent"), 10,970,424 ("the '424 Patent"), and 6,964,528 ("the '528 Patent") (collectively, the "Asserted Patents") through its development, use, and commercialization of the accused products, as defined below.

6. As explained in more detail below, Panasonic is the owner of all of the Asserted Patents, which were duly and legally issued by the United States Patent and Trademark Office ("USPTO"). For each of the Asserted Patents, Panasonic owns all substantial rights to sue for infringement in its own name, including for past, present, and future damages, and injunctive relief. Panasonic seeks injunctive relief and monetary damages as redress for Broadcom's infringement.

### **THE PARTIES**

7. Plaintiff Panasonic Holdings Corporation is a Japanese corporation with its principal place of business located at 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8501, Japan.

8. On information and belief, Defendant Broadcom Corporation is a California corporation with a regular and established place of business at 2901 Via Fortuna Drive, Austin, Texas 78746. Broadcom Corporation may be served through its registered agent for service: Corporation Service Company, 211 E. 7th Street Suite 620 Austin, Texas 78701.

## **JURISDICTION AND VENUE**

9. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331, 1332 and 1338(a) because this is a patent infringement action that arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

10. This Court has personal jurisdiction over Broadcom.

11. Broadcom has committed, and continues to commit, acts of infringement in this District, has conducted business in this District, and/or has engaged in continuous and systematic activities in this District. On information and belief, Broadcom Corporation has a regular and established place of business in this District, including at least at 2901 Via Fortuna Dr., Austin, Texas 78746.

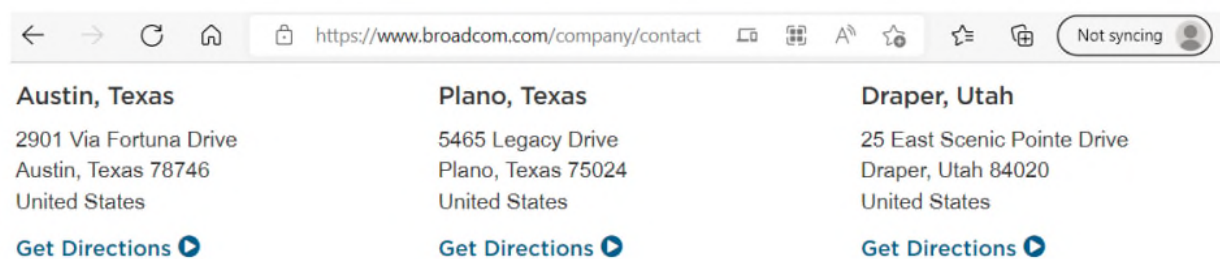
12. This Court also has personal jurisdiction over Broadcom in this action because Broadcom has committed acts within this District giving rise to this action and has established minimum contacts with this forum such that the exercise of jurisdiction over Broadcom would not offend traditional notions of fair play and substantial justice. Broadcom has committed and continues to commit acts of infringement by, among other things, making, using, offering to sell, and selling products and/or services that infringe the Asserted Patents, including the accused products described below.

13. This Court has specific personal jurisdiction over Broadcom in this action consistent with due process and the Texas Long Arm Statute because the claims asserted herein arise out of or are related to Broadcom's voluntary contacts with this forum, such voluntary contacts including but not limited to: (i) at least a portion of the actions complained of herein; (ii) purposefully and voluntarily placing Broadcom's products, including the accused products, into this District and into the stream of commerce with the intention and expectation that it will be acquired by customers and used in this District; or (iii) regularly doing or soliciting business,

engaging in other persistent courses of conduct, or deriving substantial revenue from goods and services, including Broadcom's accused products that are provided to customers in Texas and in this District.

14. Venue is proper in this District under 28 U.S.C §§ 1391(b)(3) and 1400(b) for at least the reasons set forth above. Broadcom is registered to do business in Texas, and Broadcom has transacted business in this District. Broadcom has regular and established places of business in this District. Broadcom has committed acts of direct and indirect infringement in this District.

15. Specifically, Broadcom Corp. has committed and continues to commit acts of patent infringement in this District, including making, using, offering to sell, and/or selling accused products in this District, and/or importing accused products into this District, including by Internet sales and sales via retail and wholesale stores, inducing others to commit acts of patent infringement in Texas, and/or committing at least a portion of any other infringements alleged herein in this District. Broadcom Corp. has regular and established places of business in this District, including at least at 2901 Via Fortuna Dr., Austin, Texas 78746 as shown in the following screenshot:



See <https://www.broadcom.com/company/contact>.

### ASSERTED PATENTS

16. This Complaint asserts causes of action for infringement of the '492 Patent, the '485 Patent, the '404 Patent, the '424 Patent, and the '528 Patent (collectively, the "Asserted Patents").

17. A true and correct copy of the '492 Patent, entitled "Variable Gain Amplifier," with Katsumasa Hijikata and Mineyuki Iwaida as the named inventors, is attached hereto as **Exhibit 1**. The '492 Patent duly and legally issued on August 28, 2012. Panasonic is the current owner by assignment of all rights, title, and interest in and under the '492 Patent. Panasonic has standing to sue for infringement of the '492 Patent.

18. A true and correct copy of the '485 Patent, entitled "Program Execution Device," with Hideki Matsushima, Teruto Hirota, Yukie Shoda, and Shunji Harada as the named inventors, is attached hereto as **Exhibit 2**. The '485 Patent duly and legally issued on December 22, 2015. Panasonic is the current owner by assignment of all rights, title, and interest in and under the '485 Patent. Panasonic has standing to sue for infringement of the '485 Patent.

19. A true and correct copy of the '404 Patent, entitled "Program Execution Device," with Hideki Matsushima, Teruto Hirota, Yukie Shoda, and Shunji Harada as the named inventors, is attached hereto as **Exhibit 3**. The '404 Patent duly and legally issued on December 20, 2016. Panasonic is the current owner by assignment of all rights, title, and interest in and under the '404 Patent. Panasonic has standing to sue for infringement of the '404 Patent.

20. A true and correct copy of the '424 Patent, entitled "Program Execution Device," with Hideki Matsushima, Teruto Hirota, Yukie Shoda, and Shunji Harada as the named inventors, is attached hereto as **Exhibit 4**. The '424 Patent duly and legally issued on April 6, 2021. Panasonic is the current owner by assignment of all rights, title, and interest in and under the '424 Patent. Panasonic has standing to sue for infringement of the '424 Patent.

21. A true and correct copy of the '528 Patent, entitled "Optical Mount Substrate, Optical Module, Optical Transmitter-receiver, Optical Transmitter-receiver System, and Manufacturing Method of Optical Mount Substrate," with Tsuguhiro Korenaga, Hiroyuki Asakura, Masanori Iida, Hisashi Adachi, and Mikihiro Shimada as the named inventors, is attached hereto as **Exhibit 5**. The '528 Patent duly and legally issued on November 15, 2005. Panasonic is the current owner by assignment of all rights, title, and interest in and under the '528 Patent. Panasonic has standing to sue for infringement of the '528 Patent.

### NOTICE

22. On July 23, 2019, Panasonic first approached Broadcom regarding a potential license to Panasonic's portfolio of patents. Through counsel, Panasonic provided a patent license proposal that described the technical fields of the Asserted Patents and included further information about Panasonic's worldwide patent assets and how they covered a broad array of Broadcom's products. Panasonic's patent license proposal stated that "Panasonic Patents are highly useful and valuable for Broadcom Products" and included a specific offer to license Panasonic entire portfolio, including the Asserted Patents. Panasonic also stated that "Panasonic would like to set a meeting to further discuss this proposal with Broadcom" and asked Broadcom to provide its availability.

23. A few weeks passed with no response from Broadcom. On August 20, 2019, Panasonic's counsel again contacted Broadcom's counsel, and again asked for Broadcom's availability to discuss Panasonic's patent licensing proposal. A few days later, Broadcom's counsel responded and summarily rejected Panasonic's offer to discuss the patent licensing proposal. Panasonic's counsel asked if Broadcom would be willing to discuss the matter further. Broadcom again declined to respond.

24. On December 2, 2019, Panasonic's counsel again reached out to Broadcom's counsel, again attaching the patent license proposal from July 2019 and asking Broadcom to respond if it wished to discuss the proposal further. A few more weeks passed with no response from Broadcom.

25. On January 23, 2020, Panasonic's counsel again contacted Broadcom's counsel, this time attaching a letter that Panasonic had sent to Mr. Hock Tan, President and CEO of Broadcom, and asking when Panasonic should expect a response to the letter. The attached letter reiterated Panasonic's interest in engaging in negotiations with Broadcom for a license to Panasonic's patent portfolio.

26. On January 28, 2020, Broadcom's counsel responded and stated that all correspondence from that point forward should come through him, but at the same time, that he had "no information regarding when Panasonic should expect a response." Panasonic never received a response from Broadcom.

27. On information and belief, Broadcom was aware of the Asserted Patents prior to the filing of this lawsuit by virtue of Panasonic's July 2019 patent license proposal, as well as Panasonic's subsequent attempts to engage with Broadcom in negotiations over the patent license proposal.

28. On information and belief, Broadcom was also aware of at least the '492 Patent, the '485 Patent, the '404 Patent, and the '424 Patent prior to the filing of this lawsuit.

29. The '492 Patent was cited by Avago Technologies General IP (Singapore) Pte. Ltd—which acquired Broadcom in May 2015<sup>1</sup> and later assigned its patent rights to Broadcom International Pte. Ltd.—as prior art to Broadcom's U.S. Patent No. 9,826,291.

30. Specifically, Broadcom disclosed the '492 Patent to the USPTO as part of an Information Disclosure Statement filed on October 9, 2015, which Broadcom used to disclose prior art identified by Broadcom for Broadcom's U.S. Patent No. 9,826,291. As a result, Broadcom was aware of the '492 Patent at least as of October 9, 2015.

31. Each of the '485, '404, and '424 Patents were also cited by Broadcom as prior art to Broadcom's U.S. Patent Application 12/883,923.

32. Specifically, Broadcom disclosed the application which matured into the '485, '404, and '424 Patents to the USPTO as part of an Information Disclosure Statement filed on September 16, 2010, which Broadcom used to disclose prior art identified by Broadcom for Broadcom's U.S. Patent Application No. 12/883,923.

33. Following September 16, 2010 disclosure, the USPTO issued a non-final rejection finding the Application No. 12/883,923 unpatentable as anticipated and obvious on March 7, 2011. Following Broadcom's request for reconsideration on June 7, 2011, the USPTO issued a final rejection of Application No. 12/883,923 on August 10, 2011. After the USPTO issued its final rejection, Broadcom abandoned Application No. 12/883,923, and the USPTO issued a Notice of Abandonment on March 22, 2012.

34. As a result, Broadcom was aware of the inventions embodied in, and the specific application that led to, the '485, '404, and '424 Patents at least as of September 16, 2010.

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<sup>1</sup> <https://investors.broadcom.com/news-releases/news-release-details/avago-technologies-acquire-broadcom-37-billion>

**COUNT I.  
INFRINGEMENT OF U.S. PATENT NO. 8,253,492**

35. The allegations of the foregoing paragraphs are incorporated by reference as if fully set forth herein and form the basis for the following cause of action against Broadcom.

36. Broadcom's radio frequency (RF) products that include Bulk Acoustic Wave (BAW) and Film Bulk Acoustic Resonator (FBAR) technologies, including without limitation such as the BCM4335 (collectively, "the '492 Accused Products") are covered by claim 1 of the '492 Patent.

37. Claim 1 of the '492 Patent recites:

A variable gain amplifier, comprising:

a plurality of direct current (DC) blocking capacitors configured to commonly receive an input signal at respective first terminals;

a variable amplifier unit having a plurality of amplifier transistors configured to amplify outputs of respective second terminals of the plurality of DC blocking capacitors;

a load impedance unit commonly coupled to a plurality of outputs of the variable amplifier;

a plurality of bias resistors respectively having first terminals coupled to the respective second terminals of the plurality of DC blocking capacitors;

a variable bias voltage generator having a plurality of bias voltage generator circuits each having a constant current source and a reference transistor coupled together in series, and each configured to apply a bias voltage to a second terminal of a corresponding one of the plurality of bias resistors; and

a gain controller configured to control, independently of one another, a plurality of outputs of either the variable amplifier unit or the variable bias voltage generator.

38. Broadcom has infringed and continues to infringe, literally and/or under the doctrine of equivalents, at least claim 1 of the '492 Patent in violation of at least 35 U.S.C. § 271(a) by, directly or through intermediaries and without Panasonic's authority, making, using, importing, selling, and/or offering to sell the '492 Accused Products in the United States.

39. By way of illustration, Broadcom infringes claim 1 of the '492 Patent by having made, used, sold, offered for sale, and imported the '492 Accused Products. A more detailed

analysis of Broadcom's infringement of the '492 Patent can be found in **Exhibit 6**, which is incorporated in its entirety as if set forth herein.

40. Further, Broadcom has actively induced infringement of at least claim 1 of the '492 Patent in violation of at least 35 U.S.C. § 271(b) and (f). Users of the '492 Accused Products directly infringe at least claim 1 of the '492 Patent when they use the '492 Accused Products in the ordinary, customary, and intended way. Broadcom's inducements include, without limitation and with specific intent to encourage the infringement, knowingly inducing consumers to use the '492 Accused Products within the United States in the ordinary, customary, and intended way by, directly or through intermediaries, supplying the '492 Accused Products to consumers within the United States and instructing and encouraging such customers to use the '492 Accused Products in the ordinary, customary, and intended way, which Broadcom knows or should know infringes at least claim 1 of the '492 Patent.

41. Broadcom's inducements further include, without limitation and with specific intent to encourage the infringement, knowingly inducing customers to commit acts of infringement with respect to the '492 Accused Products within the United States, including by, directly or through intermediaries, instructing and encouraging such customers to make, use, import, sell, or offer to sell the '492 Accused Products in the United States, which Broadcom knows or should know infringes at least claim 1 of the '492 Patent.

42. Broadcom has actively contributed to infringement of at least claim 1 of the '492 Patent in violation of at least 35 U.S.C. § 271(c) and (f). Broadcom has installed the '492 Accused Products in RF receivers which are specially made or especially adapted to practice the invention claimed in at least claim 1 of the '492 Patent. The '492 Accused Products have no substantial function or use other than practicing the invention claimed in at least claim 1 of the '492 Patent.

43. Each component of the '492 Accused Products component as described in **Exhibit 6** constitutes a material part of the claimed invention recited in at least claim 1 of the '492 Patent and is not a staple article or commodity of commerce, including because it is specifically configured according to at least claim 1 of the '492 Patent.

44. Broadcom's contributory infringements include, without limitation, making, offering to sell, and/or selling within the United States, and/or importing into the United States, the '492 Accused Products, which each include one or more components for use in practicing at least claim 1 of the '492 Patent, knowing the component to be especially made or especially adapted for use in an infringement of at least claim 1 of the '492 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

45. The '492 Accused Products are not suitable for and do not have substantial non-infringing uses.

46. Broadcom has had actual knowledge of the '492 Patent since at least as early as October 9, 2015, based on Broadcom's express and specific identification of the '492 Patent as prior art to technologies that Broadcom was trying to patent. Broadcom has additional actual knowledge of the '492 Patent as of the date of this Complaint. Further and alternatively, Broadcom knew or should have known of the '492 Patent but was willfully blind to the existence of the '492 Patent. By the time of the trial of this case, Broadcom will have known and intended that its continued actions since receiving such notice would infringe and actively induce and contribute to the infringement of one or more claims of the '492 Patent. Broadcom's infringement of the '492 Patent has been willful and deliberate.

47. To the extent applicable, Panasonic has complied with the requirements of 35 U.S.C. § 287 and does not make, sell, or offer for sale products embodying the '492 Patent.

48. Broadcom's infringement has caused past and will cause ongoing injury to Panasonic. Panasonic is entitled to recover damages adequate to compensate for Broadcom's infringement. Because Broadcom's infringement has been and continues to be willful and deliberate, the Court should award enhanced damages under 35 U.S.C. § 284 and find this case exceptional and award attorney's fees under 35 U.S.C. § 285.

49. Panasonic has suffered and will continue to suffer irreparable injury as a direct and proximate result of Broadcom's infringement for which there is no adequate remedy at law. Unless Broadcom is enjoined, Panasonic will continue to suffer such irreparable injury.

50. Broadcom's infringement has been without authority and/or license from Panasonic.

**COUNT II.  
INFRINGEMENT OF U.S. PATENT NO. 9,218,485**

51. The allegations of the foregoing paragraphs are incorporated by reference as if fully set forth herein and form the basis for the following cause of action against Broadcom.

52. Broadcom's SoCs (systems-on-chip), microprocessors and microcontrollers implementing Secure Boot and/or TrustZone secure processing mode functionalities, including microprocessors incorporated in certain Raspberry Pi products, such as the BCM2711 exemplary integrated circuit; and further including Broadcom's Secure Processors and Communication Processors, such as the BCM5871X exemplary integrated circuit (*see e.g.*, <https://www.broadcom.com/products/embedded-and-networking-processors/secure> and <https://www.broadcom.com/products/embedded-and-networking-processors/communications>) (collectively, "the '485 Accused Products") are covered by at least claim 1 of the '485 Patent.

53. Claim 1 of the '485 Patent recites:

An information processing device comprising:

a storage operable to store a first set of program instructions including one or more program instructions for detecting a tampering of a second set of program instructions; and

a controller operable to (i) read the one or more program instructions of the first set of program instructions from the storage, (ii) judge whether or not at least part of the second set of program instructions is tampered with, by executing the one or more program instructions of the first set of program instructions in a secure processing mode, so as to execute, when it is judged that the second set of program instructions has not been tampered with, one or more program instructions of the second set of program instructions,

wherein, in the secure processing mode, the controller is operable to perform processing with a high level of security so that data of the storage cannot be accessed from outside.

54. Broadcom has infringed and continues to infringe, literally and/or under the doctrine of equivalents, at least claim 1 of the '485 Patent in violation of at least 35 U.S.C. § 271(a) by, directly or through intermediaries and without Panasonic's authority, making, using, importing, selling, and/or offering to sell the '485 Accused Products in the United States.

55. By way of illustration, Broadcom infringes claim 1 of the '485 Patent by having made, used, sold, offered for sale, and imported the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits. A more detailed analysis of Broadcom's infringement of the '485 Patent can be found in **Exhibit 7**, which is incorporated in its entirety as if set forth herein.

56. Broadcom has actively induced infringement of at least claim 1 of the '485 Patent in violation of at least 35 U.S.C. § 271(b) and (f). Users of the '485 Accused Products directly infringe at least claim 1 of the '485 Patent when they use the '485 Accused Products in the ordinary, customary, and intended way. Broadcom's inducements include, without limitation and with specific intent to encourage the infringement, knowingly inducing consumers to use the '485 Accused Products within the United States in the ordinary, customary, and intended way by, directly or through intermediaries, supplying the '485 Accused Products to consumers within the United States and instructing and encouraging such customers (for example, by offering the BCM

2711 and/or BCM5871X exemplary infringing integrated circuits) to use the '485 Accused Products in the ordinary, customary, and intended way, which Broadcom knows or should know infringes at least claim 1 of the '485 Patent.

57. Broadcom's inducements further include, without limitation and with specific intent to encourage the infringement, knowingly inducing customers to commit acts of infringement with respect to the '485 Accused Products within the United States, including by, directly or through intermediaries, instructing and encouraging such customers to make, use, import, sell, or offer to sell the '485 Accused Products in the United States, which Broadcom knows or should know infringes at least claim 1 of the '485 Patent.

58. Broadcom has actively contributed to infringement of at least claim 1 of the '485 Patent in violation of at least 35 U.S.C. § 271(c) and (f). Broadcom has produced and configured the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other '485 Accused Products to comprise secure processing mode functionalities, including Secure Boot and/or TrustZone, which are specially made or especially adapted to practice the invention claimed in at least claim 1 of the '485 Patent. The BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other '485 Accused Products have no substantial function or use other than practicing the invention claimed in at least claim 1 of the '485 Patent.

59. Each component of the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other the '485 Accused Products as recited in **Exhibit 7** constitutes a material part of the claimed invention recited in at least claim 1 of the '485 Patent and is not a staple article or commodity of commerce including because it is specifically configured according to at least claim 1 of the '485 Patent.

60. Broadcom's contributory infringements include, without limitation, making, offering to sell, and/or selling within the United States, and/or importing into the United States, the '485 Accused Products, which each include one or more components for use in practicing at least claim 1 of the '485 Patent, knowing the component to be especially made or especially adapted for use in an infringement of at least claim 1 of the '485 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

61. The '485 Accused Products are not suitable for and do not have substantial non-infringing uses.

62. Broadcom has had actual knowledge of the '485 Patent since at least as early as December 25, 2015, based on Broadcom's express and specific identification of the inventions embodied in, and the specific application that led to, the '485 Patent as prior art to technologies that Broadcom was trying to patent. Broadcom has additional actual knowledge of the '485 Patent as of the date of this Complaint. Further and alternatively, Broadcom knew or should have known of the '485 Patent but was willfully blind to the existence of the '485 Patent. By the time of the trial of this case, Broadcom will have known and intended that its continued actions since receiving such notice would infringe and actively induce and contribute to the infringement of one or more claims of the '485 Patent. Broadcom's infringement of the '485 Patent has been willful and deliberate.

63. To the extent applicable, Panasonic has complied with the requirements of 35 U.S.C. § 287 and does not make, sell, or offer for sale products embodying the '485 Patent.

64. Broadcom's infringement has caused past and will cause ongoing injury to Panasonic. Panasonic is entitled to recover damages adequate to compensate for Broadcom's infringement. Because Broadcom's infringement has been and continues to be willful and

deliberate, the Court should award enhanced damages under 35 U.S.C. § 284 and find this case exceptional and award attorney's fees under 35 U.S.C. § 285.

65. Panasonic has suffered and will continue to suffer irreparable injury as a direct and proximate result of Broadcom's infringement for which there is no adequate remedy at law. Unless Broadcom is enjoined, Panasonic will continue to suffer such irreparable injury.

66. Broadcom's infringement has been without authority and/or license from Panasonic.

**COUNT III.  
INFRINGEMENT OF U.S. PATENT NO. 9,524,404**

67. The allegations of the foregoing paragraphs are incorporated by reference as if fully set forth herein and form the basis for the following cause of action against Broadcom.

68. Broadcom's SoCs (systems-on-chip), microprocessors and microcontrollers implementing Secure Boot and/or TrustZone secure processing mode functionalities, including microprocessors incorporated in certain Raspberry Pi products, such as the BCM2711 exemplary integrated circuit; and further including Broadcom's Secure Processors and Communication Processors, such as the BCM5871X exemplary integrated circuit (*see e.g.*, <https://www.broadcom.com/products/embedded-and-networking-processors/secure> and <https://www.broadcom.com/products/embedded-and-networking-processors/communications>) (collectively, "the '404 Accused Products") are covered by at least claim 1 of the '404 Patent.

69. Claim 1 of the '404 Patent recites:

An information processing device comprising:

A storage operable to store a tamper detection system program for detecting a tempering of a secure processing program; and

A controller operable to read the tamper detection program from the storage, and judge whether or not the secure processing program is tampered with, by executing the tamper detection program in a secure processing mode,

wherein, in the secure processing mode, the controller is operable to prohibit an external device from accessing the storage.

70. Broadcom has infringed and continues to infringe, literally and/or under the doctrine of equivalents, at least claim 1 of the '404 Patent in violation of at least 35 U.S.C. § 271(a) by, directly or through intermediaries and without Panasonic's authority, making, using, importing, selling, and/or offering to sell the '404 Accused Products in the United States.

71. By way of illustration, Broadcom infringes claim 1 of the '404 Patent by having made, used, sold, offered for sale, and imported the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits. A more detailed analysis of Broadcom's infringement of the '404 Patent can be found in **Exhibit 8**, which is incorporated in its entirety as if set forth herein.

72. Broadcom has actively induced infringement of at least claim 1 of the '404 Patent in violation of at least 35 U.S.C. § 271(b) and (f). Users of the '404 Accused Products directly infringe at least claim 1 of the '404 Patent when they use the '404 Accused Products in the ordinary, customary, and intended way. Broadcom's inducements include, without limitation and with specific intent to encourage the infringement, knowingly inducing consumers to use the '404 Accused Products within the United States in the ordinary, customary, and intended way by, directly or through intermediaries, supplying the '404 Accused Products to consumers within the United States and instructing and encouraging such customers (for example, by offering the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits) to use the '404 Accused Products in the ordinary, customary, and intended way, which Broadcom knows or should know infringes at least claim 1 of the '404 Patent.

73. Broadcom's inducements further include, without limitation and with specific intent to encourage the infringement, knowingly inducing customers to commit acts of infringement with respect to the '404 Accused Products within the United States, including by,

directly or through intermediaries, instructing and encouraging such customers to make, use, import, sell, or offer to sell the '404 Accused Products in the United States, which Broadcom knows or should know infringes at least claim 1 of the '404 Patent.

74. Broadcom has actively contributed to infringement of at least claim 1 of the '404 Patent in violation of at least 35 U.S.C. § 271(c) and (f). Broadcom has produced and configured the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other '404 Accused Products to comprise secure processing mode functionalities, including Secure Boot and/or TrustZone, which are specially made or especially adapted to practice the invention claimed in at least claim 1 of the '404 Patent. The BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other '404 Accused Products have no substantial function or use other than practicing the invention claimed in at least claim 1 of the '404 Patent.

75. Each component of the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other '404 Accused Products' components as described in **Exhibit 8** constitutes a material part of the claimed invention recited in at least claim 1 of the '404 Patent and is not a staple article or commodity of commerce, including because it is specifically configured according to at least claim 1 of the '404 Patent.

76. Broadcom's contributory infringements include, without limitation, making, offering to sell, and/or selling within the United States, and/or importing into the United States, the '404 Accused Products, which each include one or more components for use in practicing at least claim 1 of the '404 Patent, knowing the component to be especially made or especially adapted for use in an infringement of at least claim 1 of the '404 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

77. The '404 Accused Products are not suitable for and do not have substantial non-infringing uses.

78. Broadcom has had actual knowledge of the '404 Patent since at least as early as December 20, 2016, based on Broadcom's express and specific identification of the inventions embodied in, and the specific application that led to, the '404 Patent as prior art to technologies that Broadcom was trying to patent. Broadcom has additional actual knowledge of the '404 Patent as of the date of this Complaint. Further and alternatively, Broadcom knew or should have known of the '404 Patent but was willfully blind to the existence of the '404 Patent. By the time of the trial of this case, Broadcom will have known and intended that its continued actions since receiving such notice would infringe and actively induce and contribute to the infringement of one or more claims of the '404 Patent. Broadcom's infringement of the '404 Patent has been willful and deliberate.

79. To the extent applicable, Panasonic has complied with the requirements of 35 U.S.C. § 287 and does not make, sell, or offer for sale products embodying the '404 Patent.

80. Broadcom's infringement has caused past and will cause ongoing injury to Panasonic. Panasonic is entitled to recover damages adequate to compensate for Broadcom's infringement. Because Broadcom's infringement has been and continues to be willful and deliberate, the Court should award enhanced damages under 35 U.S.C. § 284 and find this case exceptional and award attorney's fees under 35 U.S.C. § 285.

81. Panasonic has suffered and will continue to suffer irreparable injury as a direct and proximate result of Broadcom's infringement for which there is no adequate remedy at law. Unless Broadcom is enjoined, Panasonic will continue to suffer such irreparable injury.

82. Broadcom's infringement has been without authority and/or license from Panasonic.

**COUNT IV.  
INFRINGEMENT OF U.S. PATENT NO. 10,970,424**

83. The allegations of the foregoing paragraphs are incorporated by reference as if fully set forth herein and form the basis for the following cause of action against Broadcom.

84. Broadcom's SoCs (systems-on-chip), microprocessors and microcontrollers implementing Secure Boot and/or TrustZone secure processing mode functionalities, including microprocessors incorporated in certain Raspberry Pi products, such as the BCM2711 exemplary integrated circuit; and further including Broadcom's Secure Processors and Communication Processors, such as the BCM5871X exemplary integrated circuit (*see e.g.*, <https://www.broadcom.com/products/embedded-and-networking-processors/secure> and <https://www.broadcom.com/products/embedded-and-networking-processors/communications>) (collectively, "the '424 Accused Products") are covered by at least claim 1 of the '424 Patent.

85. Claim 1 of the '424 Patent recites:

An information processing device comprising: a hardware memory configured to load at least a program to be protected; and a controller configured to judge whether or not the program to be protected is tampered with, by executing a tamper detection program in a secure processing mode, wherein, in the secure processing mode, the controller is configured to prohibit an external device from accessing data in the hardware memory.

86. Broadcom has infringed and continues to infringe, literally and/or under the doctrine of equivalents, at least claim 1 of the '424 Patent in violation of at least 35 U.S.C. § 271(a) by, directly or through intermediaries and without Panasonic's authority, making, using, importing, selling, and/or offering to sell the '424 Accused Products in the United States.

87. By way of illustration, Broadcom infringes claim 1 of the '424 Patent by having made, used, sold, offered for sale, and imported the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits. A more detailed analysis of Broadcom's infringement of the '424 Patent can be found in **Exhibit 9**, which is incorporated in its entirety as if set forth herein.

88. Broadcom has actively induced infringement of at least claim 1 of the '424 Patent in violation of at least 35 U.S.C. § 271(b) and (f). Users of the '424 Accused Products directly infringe at least claim 1 of the '424 Patent when they use the '424 Accused Products in the ordinary, customary, and intended way. Broadcom's inducements include, without limitation and with specific intent to encourage the infringement, knowingly inducing consumers to use the '424 Accused Products within the United States in the ordinary, customary, and intended way by, directly or through intermediaries, supplying the '424 Accused Products to consumers within the United States and instructing and encouraging such customers (for example, by offering the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits) to use the '424 Accused Products in the ordinary, customary, and intended way, which Broadcom knows or should know infringes at least claim 1 of the '424 Patent.

89. Broadcom's inducements further include, without limitation and with specific intent to encourage the infringement, knowingly inducing customers to commit acts of infringement with respect to the '424 Accused Products within the United States, including by, directly or through intermediaries, instructing and encouraging such customers to make, use, import, sell, or offer to sell the '424 Accused Products in the United States, which Broadcom knows or should know infringes at least claim 1 of the '424 Patent.

90. Broadcom has actively contributed to infringement of at least claim 1 of the '424 Patent in violation of at least 35 U.S.C. § 271(c) and (f). Broadcom has produced and configured

the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other '424 Accused Products to comprise secure processing mode functionalities, including Secure Boot and/or TrustZone, which are specially made or especially adapted to practice the invention claimed in at least claim 1 of the '424 Patent. The BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other '424 Accused Products have no substantial function or use other than practicing the invention claimed in at least claim 1 of the '424 Patent.

91. Each component of the BCM 2711 and/or BCM5871X exemplary infringing integrated circuits and all other '424 Accused Products as described in **Exhibit 9** constitutes a material part of the claimed invention recited in at least claim 1 of the '424 Patent and is not a staple article or commodity of commerce, including because it is specifically configured according to at least claim 1 of the '424 Patent.

92. Broadcom's contributory infringements include, without limitation, making, offering to sell, and/or selling within the United States, and/or importing into the United States, the '424 Accused Products, which each include one or more components for use in practicing at least claim 1 of the '424 Patent, knowing the component to be especially made or especially adapted for use in an infringement of at least claim 1 of the '424 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

93. The '424 Accused Products are not suitable for and do not have substantial non-infringing uses.

94. Broadcom has had actual knowledge of the '424 Patent since at least as early as April 6, 2021, based on Broadcom's express and specific identification of the inventions embodied in, and the specific application that led to, the '424 Patent as prior art to technologies that Broadcom was trying to patent. Broadcom has additional actual knowledge of the '424 Patent as

of the date of this Complaint. Further and alternatively, Broadcom knew or should have known of the '424 Patent but was willfully blind to the existence of the '424 Patent. By the time of the trial of this case, Broadcom will have known and intended that its continued actions since receiving such notice would infringe and actively induce and contribute to the infringement of one or more claims of the '424 Patent. Broadcom's infringement of the '424 Patent has been willful and deliberate.

95. To the extent applicable, Panasonic has complied with the requirements of 35 U.S.C. § 287 and does not make, sell, or offer for sale products embodying the '424 Patent.

96. Broadcom's infringement has caused past and will cause ongoing injury to Panasonic. Panasonic is entitled to recover damages adequate to compensate for Broadcom's infringement. Because Broadcom's infringement has been and continues to be willful and deliberate, the Court should award enhanced damages under 35 U.S.C. § 284 and find this case exceptional and award attorney's fees under 35 U.S.C. § 285.

97. Panasonic has suffered and will continue to suffer irreparable injury as a direct and proximate result of Broadcom's infringement for which there is no adequate remedy at law. Unless Broadcom is enjoined, Panasonic will continue to suffer such irreparable injury.

98. Broadcom's infringement has been without authority and/or license from Panasonic.

**COUNT V.  
INFRINGEMENT OF U.S. PATENT NO. 6,964,528**

99. The allegations of the foregoing paragraphs are incorporated by reference as if fully set forth herein and form the basis for the following cause of action against Broadcom.

100. Broadcom's services and products (including AFBR-5803ATQZ) (collectively, "the '528 Accused Products") are covered by at least claim 1 of the '528 Patent.

101. Claim 1 of the '528 Patent recites:

An optical mount substrate comprising:

an optical fiber guide section for arranging and fixing an optical transfer section, having an optical waveguide, or an optical fiber; and

an arrangement section for arranging an optical device optically connected with the optical waveguide or the optical fiber on a first principal plane, wherein;

an electrical conductivity member having a higher apparent initial softening temperature than that of material comprising said arrangement section, which penetrates through said arrangement section from the first principal plane of the arrangement section to a second principal plane of the arrangement section substantially parallel to the first principal plane; and

the electrical conductivity member is electrically coupled to the optical device.

102. Broadcom has infringed and continues to infringe, literally and/or under the doctrine of equivalents, at least claim 1 of the '528 Patent in violation of at least 35 U.S.C. § 271(a) by, directly or through intermediaries and without Panasonic's authority, making, using, importing, selling, and/or offering to sell the '528 Accused Products in the United States.

103. By way of illustration, Broadcom infringes claim 1 of the '528 Patent by having made, used, sold, offered for sale, and imported the AFBR-5803ATQZ. A more detailed analysis of Broadcom's infringement of the '528 Patent can be found in **Exhibit 10**, which is incorporated in its entirety as if set forth herein.

104. Further, Broadcom has, at least as of the date of this suit, actively induced infringement of at least claim 1 of the '528 Patent in violation of at least 35 U.S.C. § 271(b) and (f). Users of the '528 Accused Products directly infringe at least claim 1 of the '528 Patent when they use the '528 Accused Products in the ordinary, customary, and intended way as set forth in Broadcom's publications, which include but are not limited to those cited above. Broadcom's inducements include, without limitation and with specific intent to encourage the infringement,

knowingly inducing consumers to use the '528 Accused Products within the United States in the ordinary, customary, and intended way by, directly or through intermediaries, supplying the '528 Accused Products to consumers within the United States and instructing and encouraging such customers (for example, by offering the AFBR-5803ATQZ) to use the '528 Accused Products in the ordinary, customary, and intended way, which Broadcom knows or should know infringes at least claim 1 of the '528 Patent.

105. Broadcom's inducements further include, without limitation and with specific intent to encourage the infringement, knowingly inducing customers to commit acts of infringement with respect to the '528 Accused Products within the United States, including by, directly or through intermediaries, instructing and encouraging such customers to make, use, import, sell, or offer to sell the '528 Accused Products in the United States, which Broadcom knows or should know infringes at least claim 1 of the '528 Patent.

106. Additionally, Broadcom has, at least as of the date of this suit, actively contributed to infringement of at least claim 1 of the '528 Patent in violation of at least 35 U.S.C. § 271(c) and (f). Broadcom has produced and configured at least the AFBR-5803ATQZ and all other '528 Accused Products, which are specially made or especially adapted to practice the invention claimed in at least claim 1 of the '528 Patent. The AFBR-5803ATQZ and all other '528 Accused Products have no substantial function or use other than practicing the invention claimed in at least claim 1 of the '528 Patent.

107. Each component of the '528 Accused Products as described in **Exhibit 10** constitutes a material part of the claimed invention recited in at least claim 1 of the '528 Patent and is not a staple article or commodity of commerce including because it is specifically configured according to at least claim 1 of the '528 Patent.

108. Broadcom's contributory infringements include, without limitation, making, offering to sell, and/or selling within the United States, and/or importing into the United States, the '528 Accused Products, which each include one or more components for use in practicing at least claim 1 of the '528 Patent, knowing the component to be especially made or especially adapted for use in an infringement of at least claim 1 of the '528 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

109. The '528 Accused Products are not suitable for and do not have substantial non-infringing uses.

110. Based on the information currently available to Panasonic, Panasonic alleges only post-suit indirect infringement of the '528 Patent. However, to the extent discovery reveals additional facts supporting pre-suit indirect infringement, Panasonic expressly reserves the right to assert such claims.

111. Broadcom actually knew about the '528 Patent and/or should have known of the '528 Patent but was willfully blind to the existence of the '528 Patent in light of the patent licensing negotiations between the parties. Broadcom further has actual knowledge of the '528 Patent as of the date of this Complaint. By the time of the trial of this case, Broadcom will have known and intended that its continued actions since receiving such notice would infringe and actively induce and contribute to the infringement of one or more claims of the '528 Patent. Broadcom's infringement of the '528 Patent has been willful and deliberate. To the extent applicable, Panasonic has complied with the requirements of 35 U.S.C. § 287 and does not make, sell, or offer for sale products embodying the '528 Patent.

112. Broadcom's infringement has caused past and will cause ongoing injury to Panasonic. Panasonic is entitled to recover damages adequate to compensate for Broadcom's

infringement. Because Broadcom's infringement has been and continues to be willful and deliberate, the Court should award enhanced damages under 35 U.S.C. § 284 and find this case exceptional and award attorney's fees under 35 U.S.C. § 285.

113. Panasonic has suffered and will continue to suffer irreparable injury as a direct and proximate result of Broadcom's infringement for which there is no adequate remedy at law. Unless Broadcom is enjoined, Panasonic will continue to suffer such irreparable injury.

114. Broadcom's infringement has been without authority and/or license from Panasonic.

### **DEMAND FOR JURY TRIAL**

115. Pursuant to Federal Rule of Civil Procedure 38(b), Panasonic requests a jury trial of all issues triable of right by a jury.

### **PRAYER FOR RELIEF**

WHEREFORE, Panasonic respectfully requests that the Court enter an order providing the following relief:

- a. A judgment in favor of Panasonic that Broadcom has infringed each Asserted Patent, whether literally or under the doctrine of equivalents;
- b. A judgment that such infringement of each Asserted Patent has been willful and deliberate;
- c. A judgment and order permanently enjoining Broadcom, its officers, agents, servants, employees, attorneys, and all those persons in active concert or participation with it, from further acts of infringement of the Asserted Patents pursuant to 35 U.S.C. § 283;
- d. A judgment and order requiring Broadcom to pay Panasonic's damages, including a reasonable royalty, as well as costs, expenses, and pre-judgment and post-judgment interest for Broadcom's infringement of each Asserted Patent as provided under 35 U.S.C. § 284,

including supplemental damages for any continuing post-verdict or post-judgment infringement with an accounting as needed;

e. A judgment and order requiring Broadcom to pay Panasonic's enhanced damages for willful infringement as provided under 35 U.S.C. § 284;

f. A judgment and order finding this case exceptional and requiring Broadcom to pay Panasonic their reasonable attorneys' fees and costs incurred in this litigation pursuant to 35 U.S.C. § 285, together with pre-judgment and post-judgment interest thereon; and

g. Awarding Panasonic all such other and further relief, in law or equity, as the Court deems just and proper under the circumstances.

Dated: July 7, 2022

Respectfully submitted,

**DLA PIPER LLP (US)**

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