IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

MICROCHIP TECHNOLOGY   )
INCORPORATED,   )
)
            Plaintiff,   )
)
    v.   )   C.A. No. 18-1560-MN
)
NUVOTON TECHNOLOGY   )   **JURY TRIAL DEMANDED**
CORPORATION AMERICA and NUVOTON   )
TECHNOLOGY CORPORATION,   )
)
            Defendants.   )

FRIST AMENDED COMPLAINT

Plaintiff Microchip Technology Incorporated ("Microchip") files this first amended complaint against Defendants Nuvoton Technology Corporation America and Nuvoton Technology Corporation (collectively, "Nuvoton") as set forth below.

PARTIES

1.   Plaintiff Microchip Technology Incorporated is a Delaware corporation with its principal place of business located at 2355 West Chandler Blvd., Chandler, Arizona 85224-6199.

2.   Upon information and belief, Defendant Nuvoton Technology Corporation America ("Nuvoton America") is a Delaware corporation with a principal place of business at 2727 North First Street, San Jose, California, 95134.

3.   Upon information and belief, Defendant Nuvoton Technology Corporation ("Nuvoton TW") is a Taiwanese corporation with a principal place of business at No. 4, Creation Rd. III, Hsinchu Science Park, Taiwan, R.O.C.

4.   In Nuvoton TW's 2017 Annual Report, Nuvoton America's "Main businesses/products" are listed as "Design, sales and service of semiconductor components."

JURISDICTION AND VENUE

5.   This is an action for patent infringement arising under the laws of the United States, 35 U.S.C. § 101 *et seq.*   This Court has original subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

6.   Defendant Nuvoton America is subject to personal jurisdiction in this Court by virtue of its contacts with the State of Delaware, including the fact that it is a Delaware corporation.

7.   Microchip's claim for relief for patent infringement against Nuvoton America arises directly from the activities of Nuvoton America in this District.

8.   Defendant Nuvoton TW is subject to personal jurisdiction in this Court by virtue of its systematic and continuous contacts with this jurisdiction, as alleged herein.

9.   Defendant Nuvoton TW is subject to personal jurisdiction in this Court because the injury to Microchip occurred in the State of Delaware and Microchip's claim for relief against Nuvoton TW for that injury arose in the State of Delaware. On information and belief, Nuvoton TW has purposely availed itself of the privileges of conducting business within the State of Delaware, such business including but not limited to: (i) at least a portion of the infringement alleged herein; (ii) purposefully and voluntarily placing one or more infringing products into the stream of commerce with the expectation that they will be purchased by consumers in this forum; and (iii) regularly transacting or soliciting business, engaging in other persistent courses of conduct, or deriving or attempting to derive substantial revenue and financial benefits from goods and services provided to individuals and business residing in the State of Delaware and in this District, for example, by transacting with Nuvoton America, a Delaware resident. Thus, Nuvoton TW is subject to this Court's specific and general personal jurisdiction pursuant to due process and the Delaware Long Arm Statute (10 Del. C. § 3104).

10.   Personal jurisdiction in this Court also exists specifically over Nuvoton TW because

Nuvoton TW, directly or through subsidiaries or intermediaries (including customers, distributors, retailers, and others), subsidiaries, alter egos, and/or agents, ships, distributes, offers for sale, sells, imports, advertises, or markets in the State of Delaware and in this District one or more products that infringe the patents-in-suit, as described below. Nuvoton TW has purposefully and voluntarily placed one or more of its infringing products, as described below, into the stream of commerce with the awareness and/or intent that these products will be purchased by consumers in this District. Nuvoton TW has knowingly and purposefully shipped infringing products into and within this District through an established distribution channel. These infringing products have been and continue to be purchased by consumers in this District.

11.   Microchip's claim for relief for patent infringement against Nuvoton TW arises directly from the activities of Nuvoton TW in this District.

12.   On information and belief, Taiwan is not a signatory to the Hague Service Convention or any other multilateral or bilateral agreement specifying an appropriate means of service. Therefore, Nuvoton TW may be served outside the United States pursuant to Fed. R. Civ. P. 4(f)(2) or 4(f)(3).

13.   Venue of this action against Nuvoton America is proper in this District under 28 U.S.C. § 1400(b) because Defendant Nuvoton America resides in this district, by way of its formation and incorporation in Delaware.

14.   Upon information and belief, Nuvoton TW does not reside in this District.

15.   Upon information and belief, Nuvoton TW does not reside in any district in the United States.

16.   Upon information and belief, Nuvoton TW does not have a regular and established place of business in this District.

17.   Upon information and belief, Nuvoton TW does not have a regular and established

place of business in any district in the United States.

18.   Upon information and belief, venue of this action against Nuvoton TW is proper in this District under 28 U.S.C. § 1391.

THE ASSERTED PATENTS

19.   U.S. Patent No. 7,075,261, entitled "Method and Apparatus for Controlling a Fan" ("the '261 Patent"), was duly and legally issued by the U.S. Patent and Trademark Office to Steven Burstein on July 11, 2006. The '261 Patent discloses and claims systems and methods for controlling a fan. Microchip is the owner, by assignment, of all rights, title, and interest in and to the '261 patent, including the right to sue for and recover all past, present and future damages for infringement of the '261 patent. A true and correct copy of the '261 Patent is attached hereto as **Exhibit A**.

20.   U.S. Patent No. 7,126,515, entitled "Selectable Real Time Sample Triggering for a Plurality of Inputs of an Analog-to-Digital Converter" ("the '515 Patent"), was duly and legally issued by the U.S. Patent and Trademark Office to Bryan Kris on October 24, 2006. The '515 Patent discloses and claims systems and methods for converting a plurality of analog input signals. Microchip is the owner, by assignment, of all rights, title, and interest in and to the '515 patent, including the right to sue for and recover all past, present and future damages for infringement of the '515 patent. A true and correct copy of the '515 Patent is attached hereto as **Exhibit B**.

21.   U.S. Patent No. 7,353,417, entitled "Microcontroller with Synchronised Analog to Digital Converter" ("the '417 Patent"), was duly and legally issued by the U.S. Patent and Trademark Office to Jean Desuche *et al.* on April 1, 2008. The '417 Patent discloses and claims systems and methods for synchronizing a digital to analog converter. Microchip is the owner, by assignment, of all rights, title, and interest in and to the '417 patent, including the right to sue for and recover all past, present and future damages for infringement of the '417 patent. A true and correct copy of the '417 Patent is attached hereto as **Exhibit C**.

22.   U.S. Patent No. 9,442,873, entitled "Direct Memory Access Controller" ("the '873 Patent"), was duly and legally issued by the U.S. Patent and Trademark Office to Laurentiu Birsan *et al.* on September 13, 2016. The '873 Patent discloses and claims systems and methods for direct memory access.   Microchip is the owner, by assignment, of all rights, title, and interest in and to the '873 patent, including the right to sue for and recover all past, present and future damages for infringement of the '873 patent. A true and correct copy of the '873 Patent is attached hereto as **Exhibit D**.

23.   U.S. Patent No. 9,772,970, entitled "Multi-Protocol Serial Communication Interface" ("the '970 Patent"), was duly and legally issued by the U.S. Patent and Trademark Office to Yong Luo on September 26, 2017. The '970 Patent discloses and claims systems and methods for multi-protocol serial communication interfaces. Microchip is the owner, by assignment, of all rights, title, and interest in and to the '970 patent, including the right to sue for and recover all past, present and future damages for infringement of the '970 patent. A true and correct copy of the '970 Patent is attached hereto as **Exhibit E**.

24.   U.S. Patent No. 7,930,576, entitled "Sharing Non-Sharable Devices Between an Embedded Controller and a Processor in a Computer System" ("the '576 Patent"), was duly and legally issued by the U.S. Patent and Trademark Office to Ian F. Harris *et al*. on April 19, 2011. The '576 Patent discloses and claims systems and methods for sharing a device between a host processor and a microcontroller. On June 21, 2011, Attorney Jiawei Huang of J.C. PATENTS filed an *ex parte* reexamination request with the United States Patent and Trademark Office, challenging the validity of all originally issued claims in the '576 Patent (Claims 1–23). On September 4, 2012, the United States Patent and Trademark Office issued a Reexamination Certificate confirming the patentability of Claims 1–23 and new Claims 24–213. Microchip is the owner, by assignment, of all rights, title, and interest in and to the '576 patent, including the right to sue for and recover all past, present and

5

future damages for infringement of the '576 patent. A true and correct copy of the '576 Patent is attached hereto as **Exhibit F**.

BACKGROUND FACTS

25.   Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States microcontrollers used to control computer functions, including but not limited to the NPCE795x microcontroller. Nuvoton advertises the NPCE795x microcontroller as a "high-performance Flash Interface Unit (FIU) that interfaces with external SPI flash memory devices" allowing for "Shared SPI BIOS flash memory."

26.   Upon information and belief, Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States other microcontrollers that are reasonably similar to the NPCE795x microcontroller in that they are designed to interface with external SPI flash memory devices allowing for shared SPI BIOS flash memory. Upon information and belief, the Nuvoton NPCE285x_295x, NPC785x, NPCE795P, NPCE285P, NPCE985, NPCE985P, NPCE885P, NPCE791x, NPCE995x, NPCE985x, NPCE285x, NPCE295x, NPCE586, and related microcontroller products represent non-limiting examples of reasonably similar products that are designed to interface with external SPI flash memory.

27.   Nuvoton offered to sell NPCE791x and NPCE795x to United States customers through June 30, 2018.

28.   Nuvoton distributor Arrow Electronics, Inc. offers NCP785x parts for sale in the United States.

29.   Nuvoton distributor Digi-Key Corporation offers NCPE795x parts for sale in the United States.

30.   Nuvoton sells the NPCE795x microcontroller and reasonably similar products to computer manufacturers and other entities with the knowledge and intent that the NPCE795x

microcontroller and reasonably similar products will be incorporated into and later sold as part of computers and/or other final products sold in this District and throughout the United States.

31.   For example, Nuvoton's NPCE795 microcontroller is a component of the Huron River Platform.

32.   Upon information and belief, the Nuvoton NPCE795 microcontroller on the Huron River Platform interfaces with external SPI flash memory devices allowing for shared SPI BIOS flash memory between the NPCE795 microcontroller and the platform's chip set.

33.   As another example, Nuvoton's NPCE985x and NPCE995x microcontrollers are a component of the Hadley 15" / Haswell ULT Platform.

34.   Upon information and belief, the Nuvoton NPCE985x and NPCE995x microcontrollers on the Hadley 15" / Haswell ULT Platform interface with external SPI flash memory devices allowing for shared SPI BIOS flash memory between the NPCE985x and NPCE995x microcontrollers and the platform's chip set.

35.   Upon information and belief, Nuvoton's downstream customers and end-users make, use, sell, offer to sell, and/or import into the United States computer systems and related components that are reasonably similar to the Huron River Platform and Hadley 15" / Haswell ULT Platform in that they include Nuvoton microcontrollers that interface with external SPI flash memory devices allowing for shared SPI BIOS flash memory between the microcontroller and the platform's chip set.

36.   Nuvoton sells its NPCE795, NPCE985x, and NPCE995x microcontrollers and reasonably similar products to computer manufacturers and other entities with the knowledge and intent that the Huron River Platform, the Hadley 15" / Haswell ULT Platform, and reasonably similar products will be incorporated into and later sold as part of computers and/or other final products sold in this District and throughout the United States.

37.   Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States

microcontrollers used to monitor the temperature and fan speed of computer systems and thereby control the fan speed, including but not limited to the NCT7511Y HW Monitor IC using the Smart Fan™ control.

38.   Upon information and belief, Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States other microcontrollers that are reasonably similar to the NCT7511Y HW Monitor IC in that they are designed to monitor the temperature and fan speed of computer systems and thereby control the fan speed. Upon information and belief, the Nuvoton NCT6776F, NCT6776D, NCT6791D, NCT6793D, NCT7509W, NCT7509Y, NCT7802Y, W83793G, W83793AG, and related microcontroller products represent non-limiting examples of reasonably similar products that are designed to monitor the temperature and fan speed of computer systems and thereby control the fan speed by using the Smart Fan™ control.

39.   Nuvoton distributor Digi-Key Corporation offers NCT7511Y, NCT6776F, NCT6776D, NCT7509W, W83793G, and W83793AG for sale in the United States.

40.   Nuvoton sells the NCT7511Y HW Monitor IC and reasonably similar products to computer manufacturers and other entities with the knowledge and intent that NCT7511Y HW Monitor IC and reasonably similar products will be incorporated into and later sold as part of computers and/or other final products sold in this District and throughout the United States.

41.   For example, Nuvoton's NCT6791D microcontroller is a component of the ASUS X79 and P9X79 motherboards. Upon information and belief, the Nuvoton NCT6791D microcontroller on the X79 and P9X79 motherboards monitors the temperature and fan speed of computer systems and thereby controls the fan speed by using the Smart Fan™ control.

42.   As an additional example, Nuvoton's NCT6793D microcontroller is a component of the ASUS Prime Z370-A motherboard. Upon information and belief, the Nuvoton NCT6793D microcontroller on the Prime Z370-A motherboard monitors the temperature and fan speed of

computer systems and thereby controls the fan speed by using the Smart Fan™ control.

43.   Upon information and belief, Nuvoton's downstream customers and end-users make, use, sell, offer to sell, and/or import into the United States computer systems and related components that are reasonably similar to the X79, P9X79, and Prime Z370-A motherboards by including Nuvoton microcontrollers that monitor the temperature and fan speed of computer systems and thereby control the fan speed by using the Smart Fan™ control.

44.   Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States microcontrollers that include a digital to analog converter (DAC) used to convert internal digital signals to analog output signals. Such microcontrollers include but are not limited to the NuMicro M451 32-bit MCU.

45.   Upon information and belief, Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States other microcontrollers that are reasonably similar to the NuMicro M451 32-bit MCU by including a DAC used to convert internal digital signals to analog output signals. Upon information and belief, the NuMicro M4TK, NuMicro Nano100, NuMicro Nano110, NuMicro Nano120, NuMicro Nano130, NuMicro M452, NuMicro M453, NuMicro M480, NuMicro M481, NuMicro M482, NuMicro M483, NuMicro M484, NuMicro M485, and NuMicro M487 families and related microcontroller products represent non-limiting examples of reasonably similar products that include a DAC used to convert internal digital signals to analog output signals.

46.   Nuvoton distributor Digi-Key Corporation offers NuMicro Nano100, NuMicro Nano110, NuMicro Nano120, and NuMicro Nano130 for sale in the United States.

47.   Nuvoton sells the NuMicro M451 32-bit MCU and reasonably similar products to computer manufacturers and other entities with the knowledge and intent that the NuMicro M451 32-bit MCU and reasonably similar products will be incorporated into and later sold as part of computers and/or other final products sold in this District and throughout the United States.

48.   Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States microcontrollers that include a direct memory access (DMA) controller used to transfer data between a memory device and another device. Such microcontrollers include but are not limited to the NuMicro M451 32-bit MCU.

49.   Upon information and belief, Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States other microcontrollers that are reasonably similar to the NuMicro M451 32-bit MCU by including a DMA controller used to transfer data between a memory device and another device. Upon information and belief, the NuMicro M4TK, NuMicro M452, NuMicro M453, NuMicro M0564, NuMicro NUC121, NuMicro NUC125, NuMicro NUC126, NuMicro NUC442, NuMicro NUC472, NuMicro M480, NuMicro M481, NuMicro M482, NuMicro M483, NuMicro M484, NuMicro M485, and NuMicro M487 families and related microcontroller products represent non-limiting examples of reasonably similar products that include a DMA controller used to transfer data between a memory device and another device.

50.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro M451 microcontrollers and related products for sale to United States customers.

51.   The NuMicro M451 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: M451RC3AE, M451RD3AE, M451MLG6AE, M451VE6AE, M451VG6AE, M451LC3AE, M451LE6AE, M451RE6AE, M451LG6AE, NuTiny-M451V, Nu-LB-M451, M451RG6AE, M451LD3AE, NuMaker Brick (IoT Platform), and M451MLE6AE.

52.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro M4TK microcontrollers for sale to United States customers, including the M4TKVG6AE product.

53.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers

NuMicro M452 microcontrollers and related products for sale to United States customers.

54.   The NuMicro M452 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: M452LC3AE, M452LD3AE, M452LE6AE, M452LG6AE, M452RE6AE, M452RD3AE, and M452RG6AE.

55.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro M453 microcontrollers and related products for sale to United States customers.

56.   The NuMicro M453 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: M453LD3AE, M453RD3AE, M453LE6AE, M453LG6AE, M453VD3AE, NuMaker PFM-M453, M453LC3AE, M453RE6AE, M453VG6AE, M453RG6AE, and M453VE6AE.

57.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro Nano100 microcontrollers and related products for sale to United States customers.

58.   The NuMicro Nano100 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: NANO100KD3BN, NANO100KE3BN, NANO100LD2BN, NANO100NC2BN, NANO100SC2BN, NANO100SD3BN, NANO100NE3BN, NANO100LD3BN, NANO100SD2BN, NANO100SE3BN, NuTiny-Nano100K, NANO100LC2BN, NANO100LE3BN, and NuMaker Uni (IoT Wearable Platform).

59.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro Nano110 microcontrollers and related products for sale to United States customers.

60.   The NuMicro Nano110 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: NANO110KC2BN, NANO110KD2BN, NANO110KE3BN, NANO110SD3BN, NANO110SE3BN, NANO110SC2BN, and NANO110SD2BN.

61.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers

NuMicro Nano120 microcontrollers and related products for sale to United States customers.

62.   The NuMicro Nano120 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: NANO120KD3BN, NANO120LC2BN, NANO120LD2BN, NANO120LD3BN, NANO120LE3BN, NANO120SC2BN, NuTiny-Nano120K, NANO120SE3BN, and NANO120KE3BN.

63.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro Nano130 microcontrollers and related products for sale to United States customers.

64.   The NuMicro Nano130 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: NuTiny-Nano130K, NANO130KC2BN, NANO130KD2BN, NANO130KD3BN, NANO130SC2BN, NANO130SD2BN, NANO130SD3BN, NANO130KE3BN, and NANO130SE3BN.

65.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro NUC121 microcontrollers and related products for sale to United States customers.

66.   The NuMicro NUC121 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: NuTiny-NUC121S, NUC121ZC2AE, NUC121LC2AE, and NUC121SC2AE.

67.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro NUC125 microcontrollers and related products for sale to United States customers.

68.   The NuMicro NUC125 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: NuTiny-NUC125S, NUC125SC2AE, NUC125ZC2AE, and NUC125LC2AE.

69.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro NUC126 microcontrollers for sale to United States customers, including the NUC126SG4AE product.

70.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro NUC442 microcontrollers and related products for sale to United States customers.

71.   The NuMicro NUC442 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: NUC442VI8AE, NUC442VG8AE, NUC442RG8AE, NUC442KG8AE, NUC442JG8AE, NuTiny-NUC442J, NUC442KI8AE, NUC442RI8AE, and NUC442JI8AE.

72.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro NUC472 microcontrollers and related products for sale to United States customers.

73.   The NuMicro NUC472 microcontrollers and related products offered for sale at the Nuvoton Direct website include the following specific products: NUC472VG8AE, NUC472KG8AE, NUC472JG8AE, NUC472HG8AE, NuTiny-NUC472H, [NuMaker Bundle] PFM-NUC472 + Uno, [NuMaker Bundle] PFM-NUC472 + Uni, NuMaker-PFM-NUC472 (mbed based), NUC472VI8AE, NUC472KI8AE, NUC472JI8AE, and NUC472HI8AE.

74.   Via its Nuvoton Direct website at https://direct.nuvoton.com/en, Nuvoton offers NuMicro M487 microcontrollers and related products for sale to United States customers, including the NuMaker PFM-M487 product.

75.   Nuvoton sells the NuMicro M451 32-bit MCU and reasonably similar products to computer manufacturers and other entities with the knowledge and intent that the NuMicro M451 32-bit MCU and reasonably similar products will be incorporated in and later sold as part of computers and/or other final products sold in this District and throughout the United States.

76.   Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States microcontrollers that include a universal serial control interface controller used for serial communication with peripheral devices. Such microcontrollers include but are not limited to the NuMicro Mini57 32-bit MCU.

77. Upon information and belief, Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States other microcontrollers that are reasonably similar to the NuMicro Mini57 32-bit MCU by including a universal serial control interface controller used for serial communication with peripheral devices. Upon information and belief, the NuMicro M0564, NuMicro NUC126, NuMicro NUC121, NuMicro NUC125, NuMicro NM1120, NuMicro M480, NuMicro M481, NuMicro M482, NuMicro M483, NuMicro M484, NuMicro M485, and NuMicro M487 families and related microcontroller products represent non-limiting examples of reasonably similar products that include a universal serial control interface controller used for serial communication with peripheral devices.

78. Nuvoton distributor Digi-Key Corporation offers NuMicro Mini57, NuMicro M0564 and NuMicro NUC126 for sale in the United States.

79. Nuvoton sells the NuMicro Mini57 32-bit MCU and reasonably similar products to computer manufacturers and other entities with the knowledge and intent that the NuMicro Mini57 32-bit MCU and reasonably similar products will be incorporated into and later sold as part of computers and/or other final products sold in this District and throughout the United States.

80. Nuvoton makes, uses, sells, offers to sell, and/or imports into the United States microcontrollers that include analog-to-digital conversion circuitry with two or more sample and hold circuits used to convert analog input signals to internal digital signals. Such microcontrollers include but are not limited to the NuMicro Mini57 32-bit MCU.

81. Nuvoton sells the NuMicro Mini57 32-bit MCU products to computer manufacturers and other entities with the knowledge and intent that the NuMicro Mini57 32-bit MCU products will be incorporated into and later sold as part of computers and/or other final products sold in this District and throughout the United States.

14

COUNT I - INFRINGEMENT OF U.S. PATENT NO. 7,075,261

82.   Microchip incorporates by reference and re-states paragraphs 1 through 81.

83.   Without a license or permission from Microchip, Defendants Nuvoton TW and Nuvoton America infringe or have infringed, literally or under the doctrine of equivalents, one or more claims of the '261 Patent, including but not limited to claim 1, by importing, making, using, offering to sell, and/or selling products and/or systems that embody the patented inventions, including, among other products and/or systems, the Nuvoton NCT7511Y HW Monitor IC and other reasonably similar products including but not limited to the Nuvoton NCT6776F, NCT6776D, NCT6791D, NCT6793D, NCT7509W, NCT7509Y, NCT7802Y, W83793G, W83793AG, and related microcontroller products.

84.   The Nuvoton NCT7511Y HW Monitor IC includes a fan control unit that, when used as intended, performs a method for controlling a fan. For example, the Nuvoton NCT7511Y datasheet indicates "The NCT7511Y is a Nuvoton Hardware Monitor IC, which can monitor several critical hardware parameters of the systems, including the temperature and fan speeds, to make the system work stably and efficiently." The data sheet also indicates the NCT751Y has the following feature:

2.2   Fan Speed Monitoring and Control

- SMART FAN^{TM} IV mode or Manual mode to control the fan speed
- One fan control output multi-function (PWM/DC mode supported)
- One fan tachometer input multi-function

85.   When used as intended, the Nuvoton NCT7511Y HW Monitor IC applies power to a fan, wherein in first applying power to the fan the fan is substantially at rest. For example, the Nuvoton NCT7511Y datasheet indicates "The NCT7511Y has 1 fan control groups and two GPIO pins. The SMART FAN™ IV mode of the fan speed control provides 4 sets of temperature setting

points, and they can also control the duty cycle of fan outputs. It provides an easy method to

implement quiet and cooling solution with maximum safety and flexibility." As can be seen in the

figure below, the fan is substantially at rest prior to the time power is applied (prior to the "Start"

portion on the right).

Figure 6-1 SMART FAN™ Control Parameters

The NCT7511Y provides 1 set of PWM for fan speed control. The duty cycle of PWM can be
programmed by an 8-bit register. The expression of duty cycle can be represented as follow formula:

$$Duty-cycle(\%) = \frac{Programmed\ 8\text{-}bit\ Register\ Value}{255} \times 100\%$$

86.   When used as intended, the Nuvoton NCT7511Y HW Monitor IC performs a fan

startup routine that comprises monitoring a speed of the fan, and reducing current applied to the fan

responsive to the fan speed reaching or exceeding a minimum fan speed threshold, wherein in

reducing the current applied to the fan, the fan speed remains at a level commensurate with at least

the minimum fan speed threshold. For example, the DefaultFanSpeed register setting (Section

7.2.56) specifies the startup mode of the fan. The Nuvoton NCT7511Y datasheet indicates:

"DefaultFanSpeed : (Default Fan Speed at Power-on). Specifies the fan duty at next power on." The

NCT5711Y uses the "Fan Output Start-up Value … to turn on the fan with the specified output value"

because "[f]rom still to rotate, the fan usually needs a higher fan output value to generate enough

torque to conquer the restriction force." Upon information and belief, this setting provides a

predetermined amount of current to a fan which is then reduced when the fan reaches or exceeds the

16

fan speed specified by the DefaultFanSpeed setting so that the fan speed remains at the speed specified by the DefaultFanSpeed setting. As can be seen in the annotated figure below, the "Start" speed ("Fan Output Start-up Value") is higher than the "FanSpeed" ("DefaultFanSpeed"):

Figure 6-1 SMART FAN™ Control Parameters

87.   When used as intended, the Nuvoton NCT7511Y HW Monitor IC enters an automatic fan control mode responsive to the fan speed remaining at the level commensurate with at least the minimum fan speed threshold. For example, the step-down/step-up operation (Section 6.7–6.8) is an automatic fan control mode. Upon information and belief, the step-down/step-up operation of the SMART FAN™ IV mode begins operating responsive to the fan speed remaining at the speed specified by the DefaultFanSpeed setting, as depicted in Figure 6-1 of the NCT7511Y datasheet:

Figure 6-1 SMART FAN™ Control Parameters

88.   Nuvoton TW has been and is now directly infringing the '261 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United

States the infringing NCT7511Y HW Monitor IC and reasonably similar products that perform the claimed methods when used as intended.

89.   Nuvoton TW, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '261 Patent by making or having made, designing, testing, using, making available for another's use, selling or offering to sell, and/or importing into the United States the NCT7511Y HW Monitor IC and reasonably similar products that perform the claimed methods when used as intended.

90.   Nuvoton America has been and is now directly infringing the '261 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States the infringing NCT7511Y HW Monitor IC and reasonably similar products that perform the claimed methods when used as intended.

91.   Nuvoton America, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '261 Patent by making or having made, designing, testing, using, making available for another's use, selling or offering to sell, and/or importing the NCT7511Y HW Monitor IC and reasonably similar products that perform the claimed methods when used as intended.

92.   End users of the NCT7511Y HW Monitor IC and reasonably similar products, including Nuvoton's customers (*e.g.*, ASUS and other computer manufacturers) and individuals using computers that include the NCT7511Y HW Monitor IC or reasonably similar products (*e.g.*, the ASUS X79, P9X79, and Prime Z370-A motherboards), have been and still are infringing the '261 Patent by making, using, selling, offering to sell, and/or importing into the United States the NCT7511Y HW Monitor IC and/or products that contain the NCT7511Y HW Monitor IC or reasonably similar products that perform the claimed methods when used as intended.

93.   At least since the filing of this Complaint, Nuvoton TW and Nuvoton America are

inducing infringement and contributing to infringement of the '261 Patent by providing the NCT7511Y HW Monitor IC to other entities with knowledge of the '261 Patent and knowledge the NCT7511Y HW Monitor IC will be part of additional infringing products made, used, sold, offered for sale, and/or imported by Nuvoton's customers.

94.   Nuvoton TW and Nuvoton America have contributed to the infringement of the '261 Patent. At least since the filing of this Complaint, Nuvoton TW and Nuvoton America know that the NCT7511Y HW Monitor IC is especially made for use in an infringement of the '261 Patent, because as described above, it performs a method for controlling a fan as claimed in the '261 Patent. Nuvoton TW and Nuvoton America also have knowledge that Nuvoton's NCT7511Y HW Monitor IC has no substantial non-infringing use because it is specifically designed, marketed, and sold to computer manufacturers for use in controlling a fan as claimed in the '261 Patent. On information and belief, in the absence of reconfiguration, the NCT7511Y HW Monitor IC cannot be used for purposes other than infringing the '261 Patent.

95.   On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '261 Patent, Nuvoton TW and Nuvoton America actively induced infringement of the '261 Patent by their direct and indirect customers, including for example and without limitation, computer manufacturers and end users such as those using the NCT7511Y HW Monitor IC in a computer. Nuvoton TW and Nuvoton America's acts of inducing infringement include marketing, promoting (including providing instructions for use, e.g., the NCT5711Y datasheet), selling, offering for sale, and/or importing into the United States the NCT7511Y HW Monitor IC. On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '261 Patent, Nuvoton TW and Nuvoton America knew that the activities of their direct and indirect customers, including the activities taught by the aforementioned marketing and promotional materials, constituted direct infringement of the '261 Patent and specifically

intended their direct and indirect customers to directly infringe the '261 Patent through their using, testing, selling, offering for sale, and/or importing into the United States the NCT7511Y HW Monitor IC and other related products that perform the methods claimed in the '261 Patent.

96.   At least since the date when Nuvoton TW and Nuvoton America learned of the '261 Patent, Nuvoton TW and Nuvoton America's infringement of the '261 Patent has been willful and deliberate.

97.   On information and belief, Nuvoton TW and Nuvoton America will continue to infringe, induce infringement of, and contribute to infringement of the '261 Patent unless enjoined by this Court.

98.   As a result of Nuvoton TW and Nuvoton America's infringement of the '261 Patent, Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

99.   As a result of Nuvoton TW and Nuvoton America's infringement of the '261 Patent, Microchip has suffered and will continue to suffer irreparable harm unless Nuvoton TW and Nuvoton America are enjoined against such acts by this Court.

100.   As a result of Nuvoton TW and Nuvoton America's infringement of the '261 Patent, Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT II - INFRINGEMENT OF U.S. PATENT NO. 7,126,515

101.   Microchip incorporates by reference and re-states paragraphs 1 through 81.

102.   Without a license or permission from Microchip, Defendants Nuvoton TW and Nuvoton America infringe or have infringed, literally or under the doctrine of equivalents, one or more claims of the '515 Patent, including but not limited to claim 15, by importing, making, using, offering to sell, and/or selling products and/or systems that embody the patented inventions, including, among other products and/or systems, the NuMicro Mini57 32-bit MCU family and related microcontroller products.

103.   When used as intended, the NuMicro Mini57 32-bit MCU performs a method for converting a plurality of analog input signals to digital output signals. For example, the NuMicro Mini57 32-bit MCU technical reference manual indicates "The Mini57 series contains one 12-bit successive approximation analog-to-digital converter (SAR A/D converter) with 8 single-end external input channels."

104.   When used as intended, the NuMicro Mini57 32-bit MCU's analog-to-digital converter circuit associates each of a plurality of analog input signals with at least one trigger signal. For example, "Figure 6.16-1 ADC Control Block Diagram" of the NuMicro Mini57 32-bit MCU technical reference manual depicts multiple trigger selection circuits ("trigger source selection") associated with each of the analog input signals:
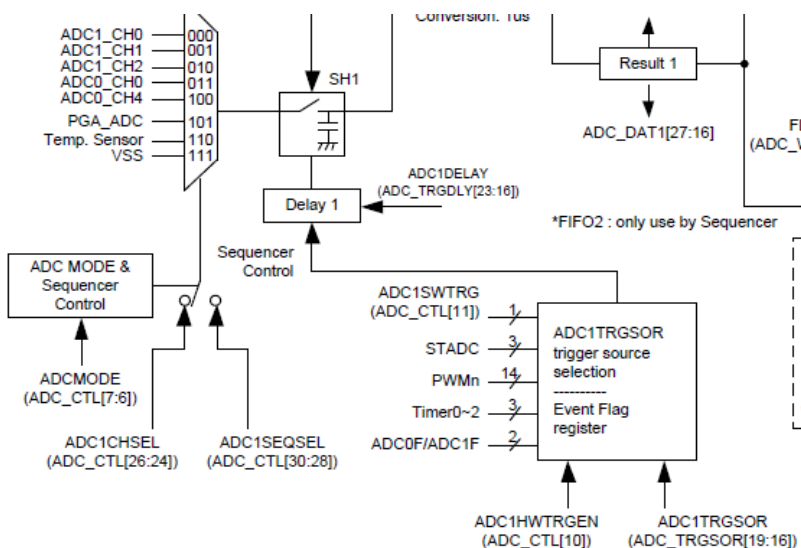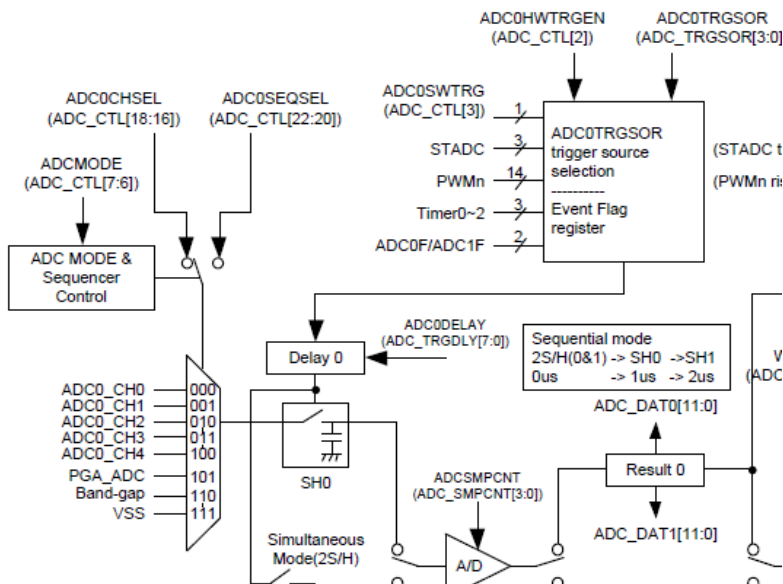
105.   When used as intended, the NuMicro Mini57 32-bit MCU's analog-to-digital converter circuit detects if at least one trigger signal associated with one of the analog inputs is active. For example, the NuMicro Mini57 32-bit MCU technical reference manual indicates "A/D conversion will be started when the ADCnSWTRG bit of ADC_CTL is set to 1 by software or hardware trigger input." The technical reference manual additionally indicates "A/D conversion can be triggered by hardware trigger request" and "A/D conversion can also be triggered by PWM request."

106.   When used as intended, the NuMicro Mini57 32-bit MCU's analog-to-digital converter circuit sends a sample request signal to a sample request latch. For example, "Figure 6.16-1 ADC Control Block Diagram" of the NuMicro Mini57 32-bit MCU technical reference manual (above) depicts a sample request signal is sent to the "Delay 0" and "Delay 1" sample request latches.

107.   When used as intended, the NuMicro Mini57 32-bit MCU's analog-to-digital converter circuit switches the analog input to the sample and hold circuit associated with the analog input signal to sample and hold the analog input associated with the one or more trigger signals if a sample and hold circuit associated with the analog input signal is available. For example, the

NuMicro Mini57 32-bit MCU technical reference manual indicates "The Mini57 series has two sample and hold (S/H) to sampling two ADC channel simultaneously." Further, "Figure 6.16-1 ADC Control Block Diagram" of the NuMicro Mini57 32-bit MCU technical reference manual depicts these two sample and hold circuits (SH0 and SH1) and the switches that allow the analog input signals to be sampled if it is available:
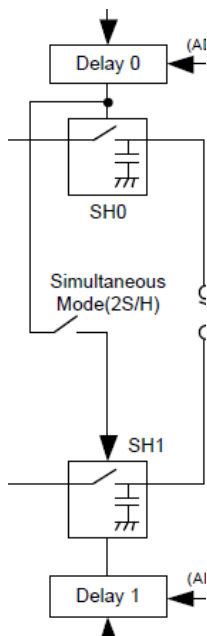
108.   When used as intended, the NuMicro Mini57 32-bit MCU's analog-to-digital converter circuit sends the sampled analog input signal to the analog to digital converter if the analog-to-digital converter is available and the sample and hold circuit associated with the sampled analog input is the highest priority requester. For example, "Figure 6.16-1 ADC Control Block Diagram" of the NuMicro Mini57 32-bit MCU technical reference manual depicts a single analog-to-digital converter (ADC) and Figures 6.16-5, 6.16-6, and 6.16-7 show the circuit sending the sampled analog input signal(s) to the ADC if the ADC is available and the sample and hold circuit associated with the sampled analog input is the highest priority requester:
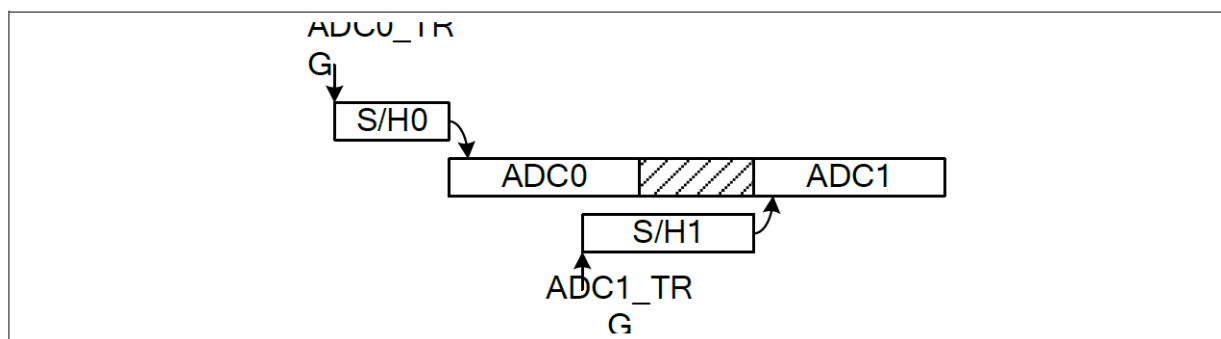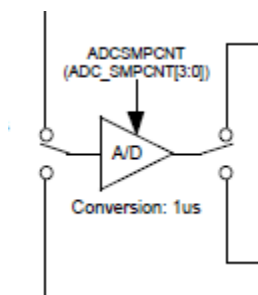
Figure 6.16-5 Independent Sample Mode Conversion Timing Diagram
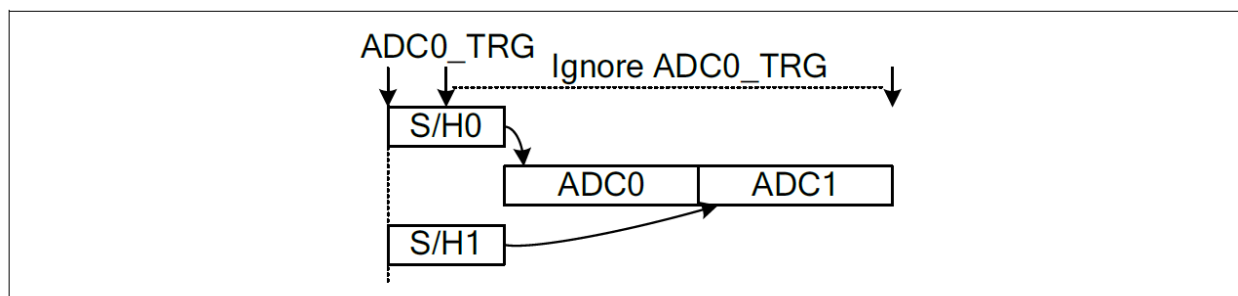

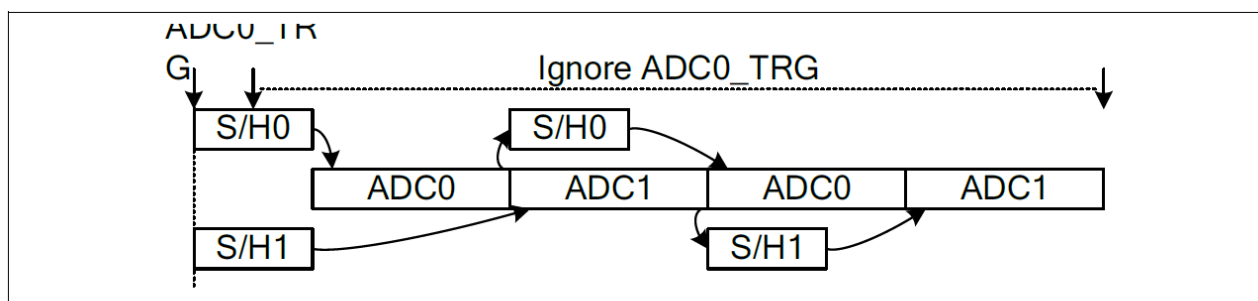Figure 6.16-6 Simultaneous Simple Mode Conversion Timing Diagram

Figure 6.16-7 Simultaneous Sequential 4R Mode Conversion Timing Diagram

109.   When used as intended, the NuMicro Mini57 32-bit MCU's analog-to-digital converter circuit converts the sampled and held analog input signals to a digital value and stores the digital value in a result register. For example, "Figure 6.16-1 ADC Control Block Diagram" of the

24

NuMicro Mini57 32-bit MCU technical reference manual depicts the converted signals as digital signals that are stored in the ADC_DAT0 and ADC_DAT1 result registers:
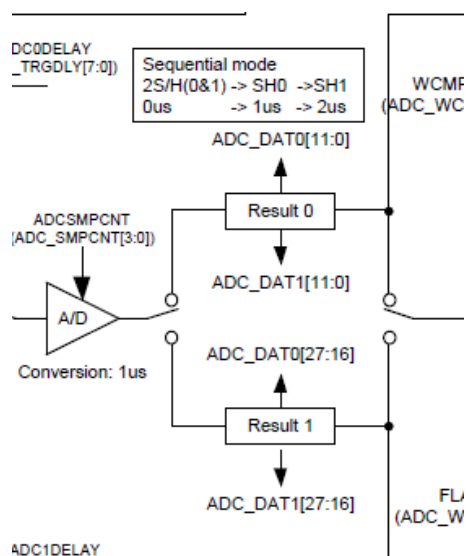
110.

111.   Nuvoton TW has been and is now directly infringing the '515 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States the infringing NuMicro Mini57 32-bit MCU and reasonably similar products that perform the claimed methods when used as intended.

112.   Nuvoton TW, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '515 Patent by making or having made, designing, testing, using, making available for another's use, selling or offering to sell, and/or importing into the United States the NuMicro Mini57 32-bit MCU and reasonably similar products that perform the claimed methods when used as intended.

113.   Nuvoton America has been and is now directly infringing the '515 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States the infringing NuMicro Mini57 32-bit MCU and reasonably similar products that perform the claimed methods when used as intended.

114.   Nuvoton America, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '515 Patent by making or having made, designing, testing, using, making available for another's use, selling or offering to sell, and/or importing into the United States the NuMicro Mini57 32-bit MCU and reasonably similar products that perform the claimed methods when used as intended.

115.   End users of the NuMicro Mini57 32-bit MCU, including Nuvoton's customers (*e.g.*, computer manufacturers) and individuals using computers that include the NuMicro Mini57 32-bit MCU, have been and still are infringing the '515 Patent by making, using, selling, offering to sell, and/or importing into the United States the NuMicro Mini57 32-bit MCU and/or products that contain the NuMicro Mini57 32-bit MCU that perform the claimed methods when used as intended.

116.   At least since the filing of this Complaint, Nuvoton TW and Nuvoton America are inducing infringement and contributing to infringement of the '515 Patent by providing the NuMicro Mini57 32-bit MCU to other entities with knowledge of the '515 Patent and knowledge the NuMicro Mini57 32-bit MCU will be part of additional infringing products made, used, sold, offered for sale, and/or imported by Nuvoton's customers.

117.   Nuvoton TW and Nuvoton America have contributed to the infringement of the '515 Patent. At least since the filing of this Complaint, Nuvoton TW and Nuvoton America know that the NuMicro Mini57 32-bit MCU is especially made for use in an infringement of the '515 Patent, because as described above, it performs a method for converting a plurality of analog input signals to digital output signals, as claimed in the '515 Patent. Nuvoton TW and Nuvoton America also have knowledge that the NuMicro Mini57 32-bit MCU has no substantial non-infringing use because it is specifically designed, marketed, and sold to computer manufacturers for use in converting analog input signals to digital output signals as claimed in the '515 Patent. On information and belief, in the

absence of reconfiguration, the NuMicro Mini57 32-bit MCU cannot be used for purposes other than infringing the '515 Patent.

118. On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '515 Patent, Nuvoton TW and Nuvoton America actively induced infringement of the '515 Patent by their direct and indirect customers, including for example and without limitation, computer manufacturers and end users such as those using NuMicro Mini57 32-bit MCUs in computers or other end products. Nuvoton TW and Nuvoton America's acts of inducing infringement include marketing, promoting (including providing instructions for use, e.g., the NuMicro Mini57 datasheet and technical reference manual), selling, offering for sale, and/or importing into the United States the NuMicro Mini57 32-bit MCU. On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '515 Patent, Nuvoton TW and Nuvoton America knew that the activities of their direct and indirect customers, including the activities taught by the aforementioned marketing and promotional materials, constituted direct infringement of the '515 Patent and specifically intended their direct and indirect customers to directly infringe the '515 Patent through their using, testing, selling, offering for sale, and/or importing into the United States the NuMicro Mini57 32-bit MCU and other related products that perform the methods claimed in the '515 Patent.

119. At least since the date when Nuvoton TW and Nuvoton America learned of the '515 Patent, Nuvoton TW and Nuvoton America's infringement of the '515 Patent has been willful and deliberate.

120. On information and belief, Nuvoton TW and Nuvoton America will continue to infringe, induce infringement of, and contribute to infringement of the '515 Patent unless enjoined by this Court.

121. As a result of Nuvoton TW and Nuvoton America's infringement of the '515 Patent,

Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

122.   As a result of Nuvoton TW and Nuvoton America's infringement of the '515 Patent, Microchip has suffered and will continue to suffer irreparable harm unless Nuvoton TW and Nuvoton America are enjoined against such acts by this Court.

123.   As a result of Nuvoton TW and Nuvoton America's infringement of the '515 Patent, Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT III - INFRINGEMENT OF U.S. PATENT NO. 7,353,417

124.   Microchip incorporates by reference and re-states paragraphs 1 through 81.

125.   Without a license or permission from Microchip, Defendants Nuvoton TW and Nuvoton America infringe or have infringed, literally or under the doctrine of equivalents, one or more claims of the '417 Patent, including but not limited to claim 1, by importing, making, using, offering to sell, and/or selling products and/or systems that embody the patented inventions, including, among other products and/or systems, the NuMicro M451 32-bit MCU and other reasonably similar products including but not limited to the NuMicro M4TK, NuMicro M452, and NuMicro M453 families and related microcontroller products.

126.   The Nuvoton NuMicro M451 32-bit MCU is microcontroller. For example, the NuMicro Family M451 Series Technical Reference Manual describes the M451 as a "32-bit Microcontroller."

127.   The Nuvoton NuMicro M451 32-bit MCU microcontroller includes a control unit (UC). For example, the NuMicro Family M451 Series Technical Reference Manual indicates the M451 has an "Arm® Cortex®-M4F core running up to 72 MHz."

128.   The Nuvoton NuMicro M451 32-bit MCU microcontroller includes at least one digital to analog converter (DAC) as a peripheral of said control unit. For example, the NuMicro Family M451 Series Technical Reference Manual indicates the M451 has "6.23 Digital to Analog Converter

(DAC)."

129.   The Nuvoton NuMicro M451 32-bit MCU microcontroller includes a buffer register located between said control unit and said converter, receiving data and a first command to transfer said data from said control unit. For example, the NuMicro Family M451 Series Technical Reference Manual indicates the "DAC_DAT" register receives data and "[t]he DAC conversion can be started by writing DAC_DAT, software trigger or hardware trigger."

130.   DAC_DAT is the "buffer register" and "DAC_DATOUT" is the "register inserted between said buffer register and said converter." First command is writing DAC_DAT. Second command comes from one of the synchronization sources (timer or PWM triggers – *e.g.*, timer "interrupt" as claimed in Claim 2).

131.   The Nuvoton NuMicro M451 32-bit MCU microcontroller includes a means of synchronisation of said converter including a register inserted between said buffer register and said converter, said register receiving a second transfer command independent of said control unit when a transition in a synchronisation signal, corresponding to a hardware interrupt, is detected. For example, the NuMicro Family M451 Series Technical Reference Manual indicates the "DAC_DATOUT" register is inserted between DAC_DAT and the digital to analog converter and that it is synchronized with a second transfer command (e.g., the enable "EN" signal from Control Logic) that is independent of the control unit when a transition in a synchronization signal corresponding to a hardware interrupt (e.g., timer trigger event or PWM timer trigger event) is detected: "When user writes the conversion data to data holding register DAC_DAT, the data is loaded into data output register DAC_DATOUT by hardware and DAC starts data conversion after one PCLK (APB clock) clock cycle. Figure 6.23-4 shows the DAC conversion started by hardware trigger (external pin STDAC, timer trigger event or PWM timer trigger event). The data stored in the DAC_DAT register is automatically transferred to the data output buffer DAC_DATOUT after

occurring one PCLK (APB clock) the event." The NuMicro Family M451 Series Technical

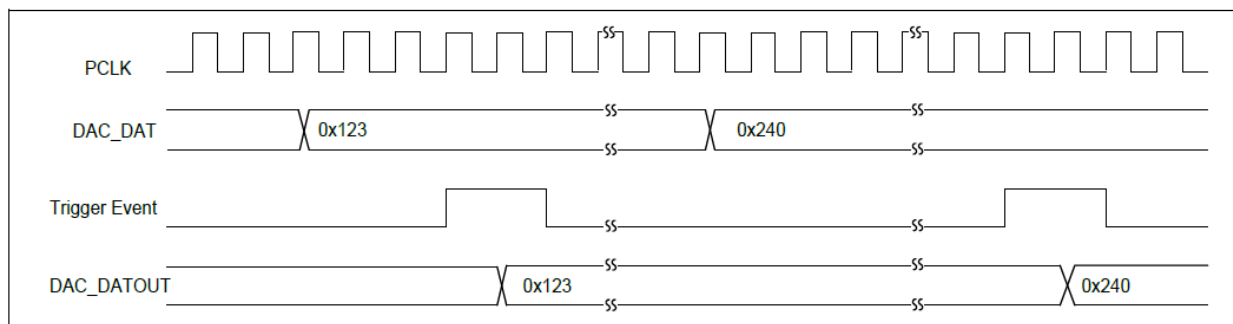Reference Manual provides a timing diagram related to this functionality:

Figure 6.23-4 DAC Conversion Started by Hardware Trigger Event

132.   Nuvoton TW has been and is now directly infringing the '417 Patent by making or

having made, designing, testing, using, selling, offering for sale, and/or importing into the United

States the infringing NuMicro M451 32-bit MCU and reasonably similar products.

133.   Nuvoton TW, directly and/or through subsidiaries or intermediaries, has infringed

and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of

the '417 Patent by making or having made, designing, testing, using, making available for another's

use, selling or offering to sell, and/or importing into the United States the NuMicro M451 32-bit

MCU and reasonably similar products.

134.   Nuvoton America has been and is now directly infringing the '417 Patent by making

or having made, designing, testing, using, selling, offering for sale, and/or importing into the United

States the infringing NuMicro M451 32-bit MCU and reasonably similar products.

135.   Nuvoton America, directly and/or through subsidiaries or intermediaries, has

infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more

claims of the '417 Patent by making or having made, designing, testing, using, making available for

another's use, selling or offering to sell, and/or importing into the United States the NuMicro M451

32-bit MCU and reasonably similar products.

136.   End users of the NuMicro M451 32-bit MCU, including Nuvoton's customers (*e.g.*, computer manufacturers) and individuals using computers that include the NuMicro M451 32-bit MCU, have been and still are infringing the '417 Patent by making, using, selling, offering to sell, and/or importing into the United States the NuMicro M451 32-bit MCU and/or products that contain the NuMicro M451 32-bit MCU.

137.   At least since the filing of this Complaint, Nuvoton TW and Nuvoton America have been and still are inducing infringement and contributing to infringement of the '417 Patent by providing the NuMicro M451 32-bit MCU to other entities with knowledge of the '417 Patent and knowledge the NuMicro M451 32-bit MCU will be part of additional infringing products made, used, sold, offered for sale, and/or imported by Nuvoton's customers.

138.   Nuvoton TW and Nuvoton America have contributed to the infringement of the '417 Patent. At least since the filing of this Complaint, Nuvoton TW and Nuvoton America know that the NuMicro M451 32-bit MCU is especially made for use in an infringement of the '417 Patent, because as described above, it provides microprocessor with a control unit and a digital-to-analog controller, as claimed in the '417 Patent. Nuvoton TW and Nuvoton America also have knowledge that Nuvoton's NuMicro M451 32-bit MCU has no substantial non-infringing use because it is specifically designed, marketed, and sold to computer manufacturers for use in computers and other end products as claimed in the '417 Patent. On information and belief, in the absence of reconfiguration, the NuMicro M451 32-bit MCU cannot be used for purposes other than infringing the '417 Patent.

139.   On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '417 Patent, Nuvoton TW and Nuvoton America actively induced infringement of the '417 Patent by their direct and indirect customers, including for example and without limitation, computer manufacturers and end users such as those using NuMicro M451 32-

bit MCUs in computers or other end products. Nuvoton TW and Nuvoton America's acts of inducing infringement include marketing, promoting (including providing instructions for use, e.g., the M451 datasheet and Technical Reference Manual), selling, offering for sale, and/or importing into the United States the NuMicro M451 32-bit MCU. On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '417 Patent, Nuvoton TW and Nuvoton America knew that the activities of their direct and indirect customers, including the activities taught by the aforementioned marketing and promotional materials, constituted direct infringement of the '417 Patent and specifically intended their direct and indirect customers to directly infringe the '417 Patent through their using, testing, selling, offering for sale, and/or importing into the United States the NuMicro M451 32-bit MCU.

140.   At least since the date when Nuvoton TW and Nuvoton America learned of the '417 Patent, Nuvoton TW and Nuvoton America's infringement of the '417 Patent has been willful and deliberate.

141.   On information and belief, Nuvoton TW and Nuvoton America will continue to infringe, induce infringement of, and contribute to infringement of the '417 Patent unless enjoined by this Court.

142.   As a result of Nuvoton TW and Nuvoton America's infringement of the '417 Patent, Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

143.   As a result of Nuvoton TW and Nuvoton America's infringement of the '417 Patent, Microchip has suffered and will continue to suffer irreparable harm unless Nuvoton TW and Nuvoton America are enjoined against such acts by this Court.

144.   As a result of Nuvoton TW and Nuvoton America's infringement of the '417 Patent, Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT IV - INFRINGEMENT OF U.S. PATENT NO. 9,442,873

145.   Microchip incorporates by reference and re-states paragraphs 1 through 81.

146.   Without a license or permission from Microchip, Defendants Nuvoton TW and Nuvoton America infringe or have infringed, literally or under the doctrine of equivalents, one or more claims of the '873 Patent, including but not limited to claim 16, by importing, making, using, offering to sell, and/or selling products and/or systems that embody the patented inventions, including, among other products and/or systems, the NuMicro M451 32-bit MCU and other reasonably similar products including but not limited to the NuMicro M4TK, NuMicro M452, and NuMicro M453 families and related microcontroller products.

147.   When used as intended, the Nuvoton NuMicro M451 32-bit MCU performs a method for direct memory access (DMA). For example, the NuMicro Family M451 Series Technical Reference Manual indicates "The peripheral direct memory access (PDMA) controller is used to provide high-speed data transfer."

148.   When used as intended, the Nuvoton NuMicro M451 32-bit MCU's DMA controller selects an enabled DMA channel as an active DMA channel. For example, the NuMicro Family M451 Series Technical Reference Manual indicates it "Supports 12 independently configurable channels (M45xG/M45xE Only" and "Supports 8 independently configurable channels (M45xD/M45xC Only)." The M451 DMA's channel arbiter arbitrates among channels based on channel priority: "The PDMA controller supports two level channel priorities including fixed and round-robin priority. The fixed priority channel has higher priority than round-robin priority channel. If multiple channels are set as fixed or round-robin priority, the higher channel will have higher priority."

149.   When used as intended, the Nuvoton NuMicro M451 32-bit MCU's DMA controller receives a transfer descriptor of the active DMA channel from a portion of memory. For example, the NuMicro Family M451 Series Technical Reference Manual indicates the PDMA includes a

descriptor table (DSCT) that is coupled to the channel arbiter and configured to receive a transfer descriptor of the active DMA channel: "The PDMA controller supports two operation modes: Basic mode and Scatter-gather mode. Basic mode is used to perform one descriptor table transfer. Scatter-gather mode has more entries for each PDMA channel, and thus the PDMA controller supports sophisticated transfer through the entries. The descriptor table entry data structure contains many transfer information including the transfer source address, transfer destination address, transfer count, burst size, transfer type and operation mode." The NuMicro Family M451 Series Technical Reference Manual illustrates the descriptor table inside the PDMA:
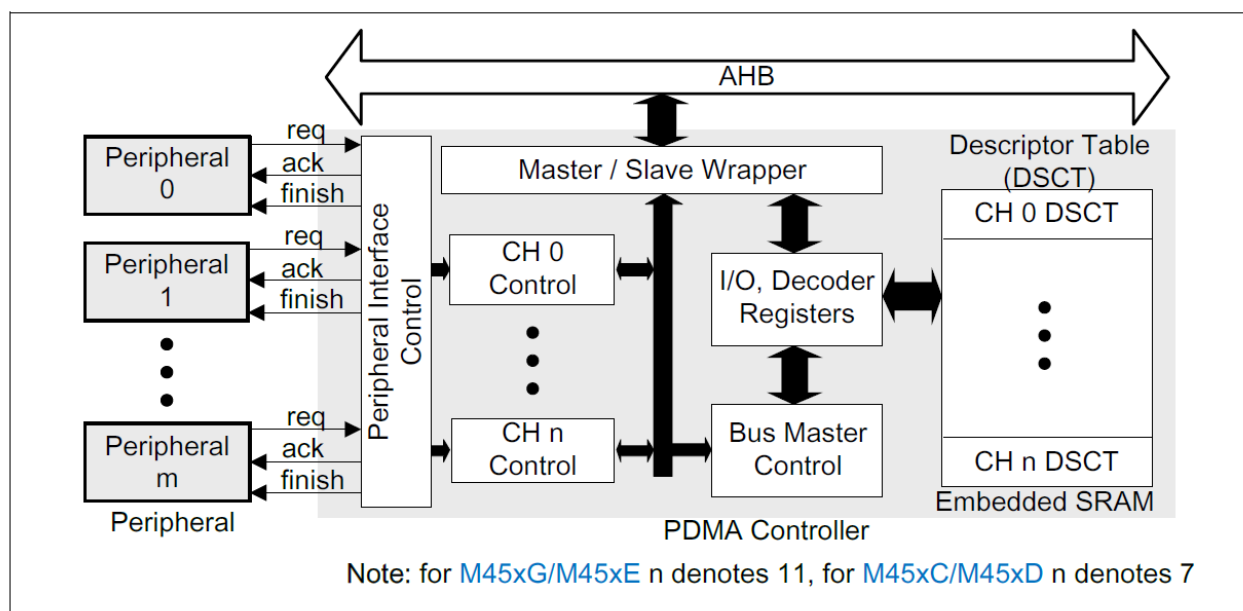

Figure 6.7-1 PDMA Controller Block Diagram

150.   When used as intended, the Nuvoton NuMicro M451 32-bit MCU's DMA controller enables a DMA channel by storing the transfer descriptor in the memory portion. For example, in scatter-gather mode, the PDMA stores a fetched transfer descriptor from SRAM into the DSCT and "[w]hen loading the information is finished, it will go to transfer state and start transfer by this information automatically." The NuMicro Family M451 Series Technical Reference Manual depicts this storing/fetching of a transfer descriptor:
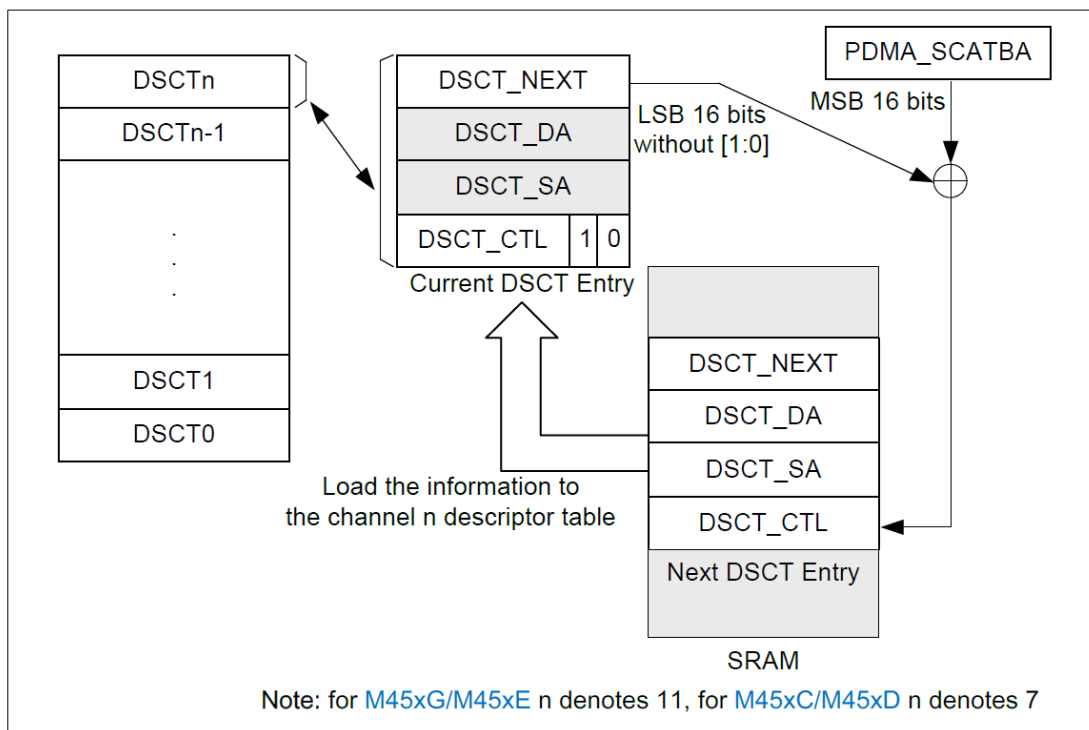
34

Figure 6.7-4 Descriptor Table Link List Structure

151.   When used as intended, the Nuvoton NuMicro M451 32-bit MCU's DMA controller performs a data transfer using the active DMA channel and the received transfer descriptor. For example, the NuMicro Family M451 Series Technical Reference Manual indicates the PDMA performs scatter-gather transfers using the active DMA channel and the descriptor saved in the descriptor table: "The PDMA controller supports two operation modes: Basic mode and Scatter-gather mode. Basic mode is used to perform one descriptor table transfer. Scatter-gather mode has more entries for each PDMA channel, and thus the PDMA controller supports sophisticated transfer through the entries. The descriptor table entry data structure contains many transfer information including the transfer source address, transfer destination address, transfer count, burst size, transfer type and operation mode."

152.   When used as intended, the Nuvoton NuMicro M451 32-bit MCU's DMA controller arbitrates among enabled DMA channels after a beat of data is transferred in the data transfer. For example, the M451 DMA supports single transfer type: "A single transfer means that software or

peripherals is ready to transfer one data (every data needs one request)." When using single transfers, the arbitration between channels will occur after a beat of data is transferred. An example of this arbitration is described in Section "6.7.5.3 Transfer Type" of the NuMicro Family M451 Series Technical Reference Manual: "[T]he PDMA controller will load the channel 1 descriptor table first and executing [sic]. But channel 1 is single transfer type, so PDMA controller will only transfer one transfer data. 3. Then, PDMA controller turns to the channel 0 and loads channel 0's descriptor table…."

153.   Nuvoton TW has been and is now directly infringing the '873 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States the infringing NuMicro M451 32-bit MCUs and reasonably similar products that perform the claimed methods when used as intended.

154.   Nuvoton TW, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '873 Patent by making or having made, designing, testing, using, making available for another's use, selling or offering to sell, and/or importing into the United States the NuMicro M451 32-bit MCUs and reasonably similar products into the United States that perform the claimed methods when used as intended.

155.   Nuvoton America has been and is now directly infringing the '873 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States the infringing NuMicro M451 32-bit MCUs and reasonably similar products that perform the claimed methods when used as intended.

156.   Nuvoton America, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '873 Patent by making or having made, designing, testing, using, making available for

another's use, selling or offering to sell, and/or importing into the United States the NuMicro M451 32-bit MCUs and reasonably similar products that perform the claimed methods when used as intended.

157.   End users of the NuMicro M451 32-bit MCU, including Nuvoton's customers (*e.g.*, computer manufacturers) and individuals using computers that include the NuMicro M451 32-bit MCU, have been and still are infringing the '873 Patent by making, using, selling, offering to sell, and/or importing into the United States the NuMicro M451 32-bit MCUs and/or products that contain the NuMicro M451 32-bit MCU that perform the claimed methods when used as intended.

158.   At least since the filing of this Complaint, Nuvoton TW and Nuvoton America have been and still are inducing infringement and contributing to infringement of the '873 Patent by providing the NuMicro M451 32-bit MCU to other entities with knowledge of the '873 Patent and knowledge the NuMicro M451 32-bit MCU will be part of additional infringing products made, used, sold, offered for sale, and/or imported by Nuvoton's customers.

159.   Nuvoton TW and Nuvoton America have contributed to the infringement of the '873 Patent. At least since the filing of this Complaint, Nuvoton TW and Nuvoton America know that the NuMicro M451 32-bit MCU is especially made for use in an infringement of the '873 Patent, because as described above, it provides DMA controller method, as claimed in the '873 Patent. Nuvoton TW and Nuvoton America also have knowledge that Nuvoton's NuMicro M451 32-bit MCU has no substantial non-infringing use because it is specifically designed, marketed, and sold to computer manufacturers for use in performing a DMA method in computers and other end products as claimed in the '873 Patent. On information and belief, in the absence of reconfiguration, the NuMicro M451 32-bit MCU cannot be used for purposes other than infringing the '873 Patent.

160.   On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '873 Patent, Nuvoton TW and Nuvoton America actively induced

infringement of the '873 Patent by their direct and indirect customers, including for example and without limitation, computer manufacturers and end users such as those using NuMicro M451 32-bit MCUs in computers and other end products. Nuvoton TW and Nuvoton America's acts of inducing infringement include marketing, promoting (including providing instructions for use, e.g., the M451 datasheet and Technical Reference Manual), selling, offering for sale, and/or importing into the United States NuMicro M451 32-bit MCUs. On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '873 Patent, Nuvoton TW and Nuvoton America knew that the activities of their direct and indirect customers, including the activities taught by the aforementioned marketing and promotional materials, constituted direct infringement of the '873 Patent and specifically intended their direct and indirect customers to directly infringe the '873 Patent through their using, testing, selling, offering for sale, and/or importing into the United States NuMicro M451 32-bit MCUs and other related products that perform the methods claimed in the '873 Patent.

161.   At least since the date when Nuvoton TW and Nuvoton America learned of the '873 Patent, Nuvoton TW and Nuvoton America's infringement of the '873 Patent has been willful and deliberate.

162.   On information and belief, Nuvoton TW and Nuvoton America will continue to infringe, induce infringement of, and contribute to infringement of the '873 Patent unless enjoined by this Court.

163.   As a result of Nuvoton TW and Nuvoton America's infringement of the '873 Patent, Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

164.   As a result of Nuvoton TW and Nuvoton America's infringement of the '873 Patent, Microchip has suffered and will continue to suffer irreparable harm unless Nuvoton TW and Nuvoton America are enjoined against such acts by this Court.

165.   As a result of Nuvoton TW and Nuvoton America's infringement of the '873 Patent, Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT V - INFRINGEMENT OF U.S. PATENT NO. 9,772,970

166.   Microchip incorporates by reference and re-states paragraphs 1 through 81.

167.   Without a license or permission from Microchip, Defendants Nuvoton TW and Nuvoton America infringe or have infringed, literally or under the doctrine of equivalents, one or more claims of the '970 Patent, including but not limited to claim 12, by importing, making, using, offering to sell, and/or selling products and/or systems that embody the patented inventions, including, among other products and/or systems, NuMicro Mini57 32-bit MCUs and other reasonably similar products including but not limited to the NuMicro M0564, NuMicro NUC126, NuMicro NUC121, NuMicro NUC125, and NuMicro NM1120 families and related microcontroller products.

168.   When used as intended, the NuMicro Mini57 32-bit MCU Universal Serial Control Interface (USCI) receives a signal to select a serial communication protocol. For example, the NuMicro Mini57 32-bit MCU technical reference manual indicates "[t]he Universal Serial Control Interface (USCI) is a flexible interface module covering several serial communication protocols. The user can configure this controller as UART, SPI, or I2C functional protocol." The NuMicro Mini57 32-bit MCU technical reference manual indicates a signal for protocol selection is stored in the USCI_CTL register: "The USCI is equipped with three protocols including UART, SPI, and I2C. They can be selected by FUNMODE (USCI_CTL [2:0])." The NuMicro Mini57 32-bit MCU technical reference manual illustrates the interface module (e.g., "Peripheral Device User Interface," "Control Register"):
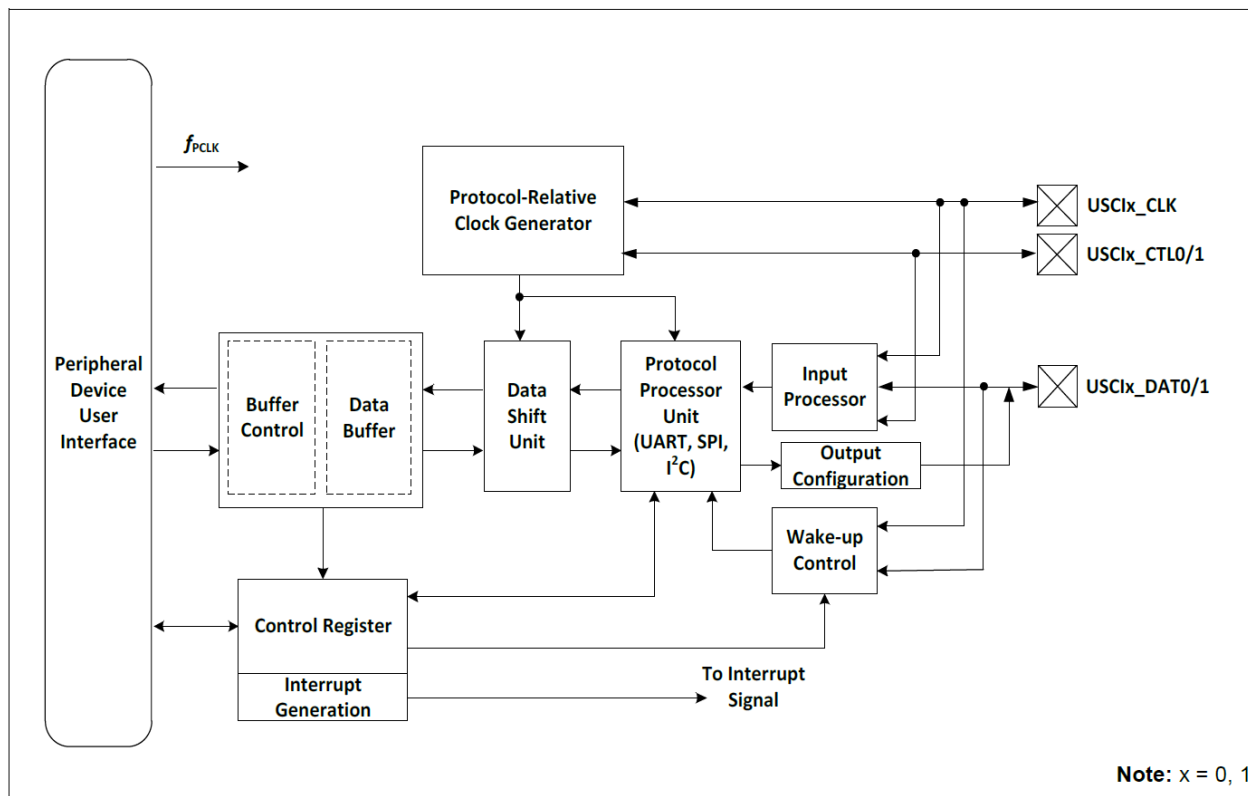
Figure 6.11-1 USCI Block Diagram

169.   When used as intended, the NuMicro Mini57 32-bit MCU USCI selects a serial communication protocol, based on the received signal, from a plurality of serial communication protocols for communicating over a serial communication bus. For example, the NuMicro Mini57 32-bit MCU technical reference manual indicates the FUNMODE (USCI_CTL [2:0]) signal selects between three serial communication protocols: "The USCI is equipped with three protocols including UART, SPI, and I2C. They can be selected by FUNMODE (USCI_CTL [2:0])."

170.   When used as intended, the NuMicro Mini57 32-bit MCU's USCI determines that a serial communication using the selected serial communication protocol is synchronous serial communication. For example, when the USCI is configured in SPI mode, data or commands will be transmitted and received using synchronous communication: "The SPI protocol of USCI controller applies to synchronous serial data communication and allows full duplex transfer."

171.   When used as intended, the NuMicro Mini57 32-bit MCU's USCI determines that a

port control module coupled to the serial communication bus is configured for asynchronous communication on the serial communication bus. For example, when the USCI is configured in UART mode, the serial communication bus is configured for asynchronous communication: "The asynchronous serial channel UART covers the reception and the transmission of asynchronous data frames." The port control module includes the "I/O Processor" (Section 6.11.4.1 of the Technical Reference). "Table 6.11-1 lists the relative input signals for each selected protocol. Each input signal is handled by an input processor for signal conditioning, such as signal inverse selection control, or a digital input filter." Table 6.11-1 shows, for example, pin/port USCIx_DAT0 is data input UARTx_RX when the selected protocol is UART. That same pin/port is data input SPIx_MOSI when the selected protocol is SPI. "Table 6.11-2 shows the relative output signals for each protocol. The number of actually used outputs depends on the selected protocol and they can be classified according to their meaning for the protocols." For example, pin/port USCIx_DAT1 is data output UARTx_TX when the selected protocol is UART. That same pin/port is SPIx_MISO when the selected protocol is SPI.

172. When used as intended, the NuMicro Mini57 32-bit MCU's USCI reconfigures the port control module from asynchronous serial communication to synchronous serial communication on the serial communication bus, including selecting one of an internal or an external clock signal for synchronous communication on the serial communication bus. For example, the USCI may be switched from UART mode (asynchronous serial communication) to SPI mode (synchronous serial communication): "The USCI is equipped with three protocols including UART, SPI, and I2C. They can be selected by FUNMODE (USCI_CTL [2:0]). Note that the FUNMODE must be set to 0 before changing protocol." When SPI mode is selected, an internal or external clock signal may be selected for the synchronous communication: "USCI controller contains a protocol-relative clock generator and it is controlled by register USCI_BRGEN. It is reset when the USCI_BRGEN register is written."

173.   When used as intended, the NuMicro Mini57 32-bit MCU's USCI transmits and receives data or commands using the enabled serial bus interface and the selected serial communication protocol. For example, the NuMicro Mini57 32-bit MCU technical reference manual indicates "[t]he output signals of protocol relative clock generator can be made available on pins (e.g USCIx_CLK for SPI)." This clock would be used for the synchronous transmission/reception of data or commands using the selected SPI protocol.

174.   Nuvoton TW has been and is now directly infringing the '970 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States the infringing NuMicro Mini57 32-bit MCU and reasonably similar products that perform the claimed methods when used as intended.

175.   Nuvoton TW, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '970 Patent by making or having made, designing, testing, using, making available for another's use, selling or offering to sell, and/or importing into the United States NuMicro Mini57 32-bit MCUs and reasonably similar products that perform the claimed methods when used as intended.

176.   Nuvoton America has been and is now directly infringing the '970 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States the infringing NuMicro Mini57 32-bit MCUs and reasonably similar products that perform the claimed methods when used as intended.

177.   Nuvoton America, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '970 Patent by making or having made, designing, testing, using, making available for another's use, selling or offering to sell, and/or importing into the United States the NuMicro Mini57 32-bit MCUs and reasonably similar products that perform the claimed methods when used as

intended.

178.   End users of the NuMicro Mini57 32-bit MCU, including Nuvoton's customers (*e.g.*, computer manufacturers) and individuals using computers that include the NPCE791x microcontroller, have been and still are infringing the '970 Patent by making, using, selling, offering to sell, and/or importing into the United States the NuMicro Mini57 32-bit MCUs and/or products that contain the NuMicro Mini57 32-bit MCU that perform the claimed methods when used as intended.

179.   At least since the filing of this Complaint, Nuvoton TW and Nuvoton America have been and still are inducing infringement and contributing to infringement of the '970 Patent by providing NuMicro Mini57 32-bit MCUs to other entities with knowledge of the '970 Patent and knowledge the NuMicro Mini57 32-bit MCU will be part of additional infringing products made, used, sold, offered for sale, and/or imported by Nuvoton's customers.

180.   Nuvoton TW and Nuvoton America have contributed to the infringement of the '970 Patent. At least since the filing of the Complaint, Nuvoton TW and Nuvoton America know that the NuMicro Mini57 32-bit MCU is especially made for use in an infringement of the '970 Patent, because as described above, it performs a method as claimed in the '970 Patent. Nuvoton TW and Nuvoton America also have knowledge that the NuMicro Mini57 32-bit MCU has no substantial non-infringing use because it is specifically designed, marketed, and sold to computer manufacturers for use in computers and other end products that perform the methods claimed in the '970 Patent. On information and belief, in the absence of reconfiguration, the NuMicro Mini57 32-bit MCU cannot be used for purposes other than infringing the '970 Patent.

181.   On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '970 Patent, Nuvoton TW and Nuvoton America actively induced infringement of the '970 Patent by their direct and indirect customers, including for example and

without limitation, computer manufacturers and end users such as those using NuMicro Mini57 32-bit MCUs in computers or other end products. Nuvoton TW and Nuvoton America's acts of inducing infringement include marketing, promoting (including providing instructions for use, e.g., the NuMicro Mini57 datasheet and technical reference manual), selling, offering for sale, and/or importing into the United States the NuMicro Mini57 32-bit MCU. On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '970 Patent, Nuvoton TW and Nuvoton America knew that the activities of their direct and indirect customers, including the activities taught by the aforementioned marketing and promotional materials, constituted direct infringement of the '970 Patent and specifically intended their direct and indirect customers to directly infringe the '970 Patent through their using, testing, selling, offering for sale, and/or importing into the United States NuMicro Mini57 32-bit MCUs and other related products that perform the methods claimed in the '970 Patent.

182.   At least since the date when Nuvoton TW and Nuvoton America learned of the '970 Patent, Nuvoton TW and Nuvoton America's infringement of the '970 Patent has been willful and deliberate.

183.   On information and belief, Nuvoton TW and Nuvoton America will continue to infringe, induce infringement of, and contribute to infringement of the '970 Patent unless enjoined by this Court.

184.   As a result of Nuvoton TW and Nuvoton America's infringement of the '970 Patent, Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

185.   As a result of Nuvoton TW and Nuvoton America's infringement of the '970 Patent, Microchip has suffered and will continue to suffer irreparable harm unless Nuvoton TW and Nuvoton America are enjoined against such acts by this Court.

186.   As a result of Nuvoton TW and Nuvoton America's infringement of the '970 Patent,

Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT VI - INFRINGEMENT OF U.S. PATENT NO. 7,930,576

187.   Microchip incorporates by reference and re-states paragraphs 1 through 81.

188.   Without a license or permission from Microchip, Defendants Nuvoton TW and Nuvoton America infringe or have infringed, literally or under the doctrine of equivalents, one or more claims of the '576 Patent, including but not limited to claim 6, by importing, making, using, offering to sell, and/or selling products and/or systems that embody the patented inventions, including, among other products and/or systems, systems that include the Nuvoton NPCE791x microcontroller and other reasonably similar products including but not limited to the Nuvoton NPCE285x_295x, NPC785x, NPCE795P, NPCE285P, NPCE985, NPCE985P, NPCE885P, NPCE795x, NPCE995x, NPCE985x, NPCE285x, NPCE295x, NPCE586, and related microcontroller products.

189.   When used as intended, the Huron River Platform and end products using the Huron River Platform perform a method for sharing a non-volatile memory between a processor and a microcontroller in a system. For example, the Huron River Platform includes a "SPI Flash 4MB" non-volatile memory:
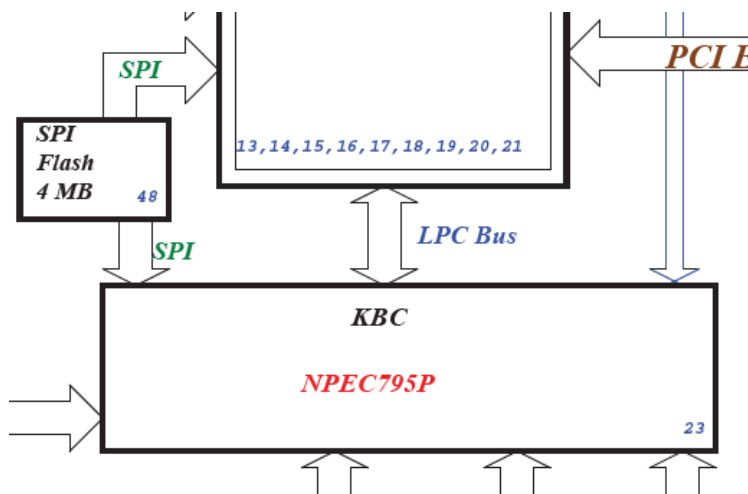

190.   The Huron River Platform and end products using the Huron River Platform include

a processor. For example, the Huron River Platform includes an "Intel CPU" and associated chip set ("Intel PCH"):
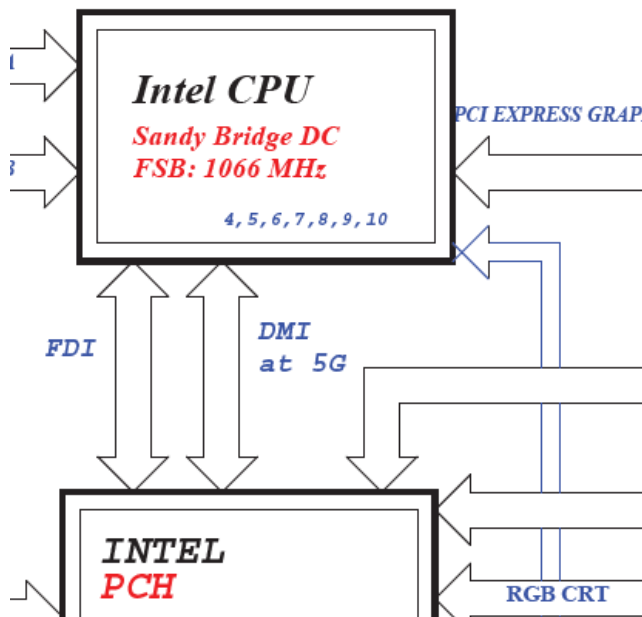

191.   The Huron River Platform and end products using the Huron River Platform include a microcontroller coupled to the non-volatile memory and to the processor. For example, the Huron River Platform includes the "NPEC795P" (on information and belief, Nuvoton's NPCE795P):
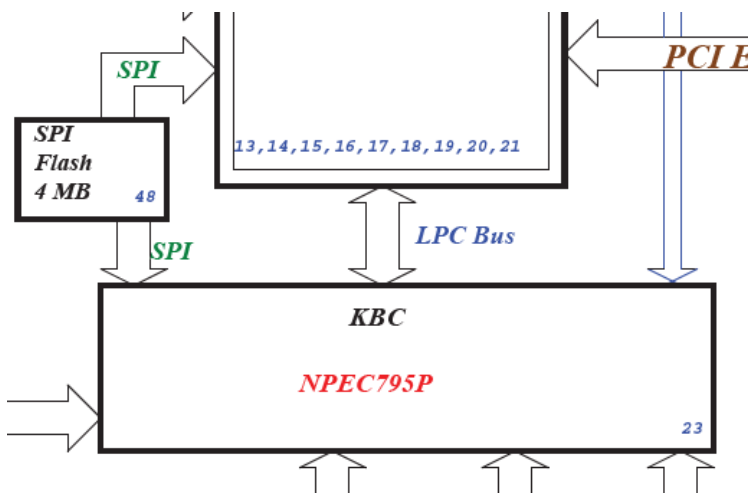
192.   When used as intended, the Nuvoton NPCE795 microcontroller on the Huron River Platform performs a method comprising: in response to a change in system state to a first state wherein the microcontroller is assured safe access to the non-volatile memory, hold the system in the

first state and switching access to the non-volatile memory from the processor to the microcontroller; while the system is held in the first state, fetching program instructions or data from the non-volatile memory and loading the program instructions or data into a memory of the microcontroller. For example, upon information and belief, during a reset of the Huron River Platform (a first state wherein the microcontroller is assured safe access to the non-volatile memory), the Nuvoton microcontroller holds the system in the reset state by asserting the RSMRST#_KBC signal. Upon information and belief, while the system is in the reset state, the Nuvoton microcontroller fetches program instructions or data from the SPI flash memory and loads the fetched instructions/data into a memory of the microcontroller, as evidenced by the SPI flash memory connections between the Nuvoton microcontroller and the SPI Flash, including the following figure (page 48):
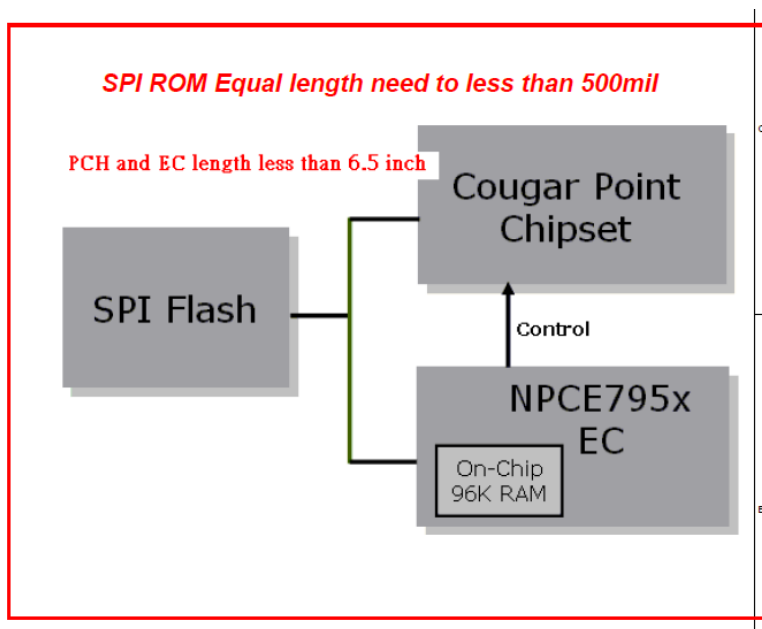

193.   When used as intended, the Nuvoton NPCE795 microcontroller on the Huron River Platform performs a method comprising: after the program instructions or data have been loaded, switching access to the non-volatile memory from the microcontroller to the processor and releasing the system from the first state. For example, upon information and belief, after the Nuvoton microcontroller has fetched the instructions and/or data, it de-asserts the RSMRST#_KBC signal.

Upon information and belief, this releases the system from the reset state and switches access to the

SPI Flash memory to the Intel chip set and processor.

194.   When used as intended, the Hadley 15" / Haswell ULT Platform and end products

using the Hadley 15" / Haswell ULT Platform perform a method for sharing a non-volatile memory

between a processor and a microcontroller in a system. For example, the Hadley 15" / Haswell ULT

Platform includes a "SPI Flash" non-volatile memory:
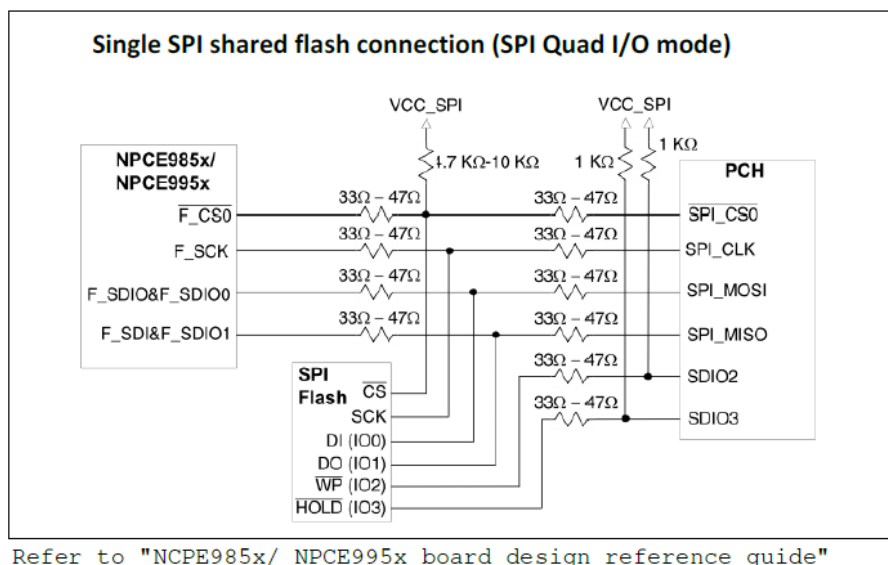
195.   The Hadley 15" / Haswell ULT Platform and end products using the Hadley 15" /

Haswell ULT Platform include a processor. For example, the Hadley 15" / Haswell ULT Platform

includes an "Intel CPU":
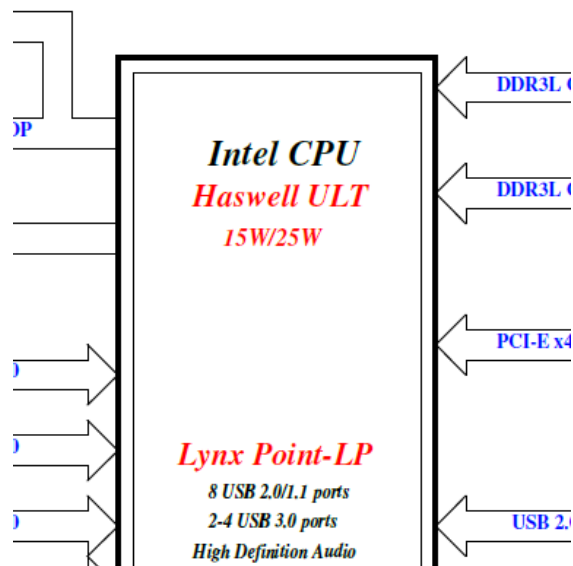
196.   The Hadley 15" / Haswell ULT Platform and end products using the Hadley 15" / Haswell ULT Platform include a microcontroller coupled to the non-volatile memory and to the processor. For example, the Hadley 15" / Haswell ULT Platform includes the "NPCE985PA0DX" (on information and belief, Nuvoton's NPCE985x):
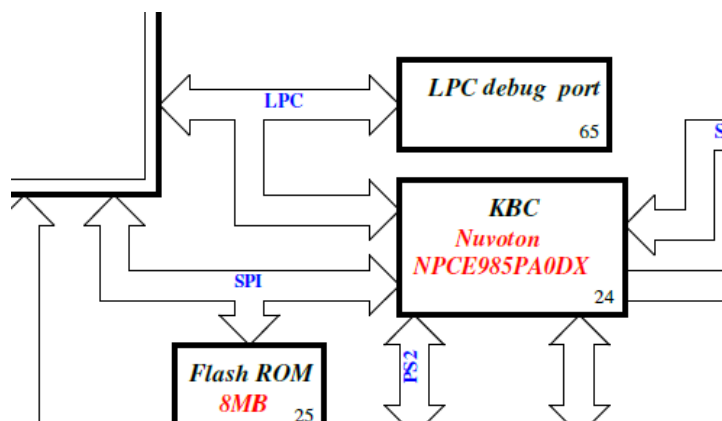
197.   When used as intended, the Nuvoton NPCE985x microcontroller on the Hadley 15" / Haswell ULT Platform performs a method comprising: in response to a change in system state to a first state wherein the microcontroller is assured safe access to the non-volatile memory, hold the system in the first state and switching access to the non-volatile memory from the processor to the microcontroller; while the system is held in the first state, fetching program instructions or data from

the non-volatile memory and loading the program instructions or data into a memory of the microcontroller. For example, upon information and belief, during a reset of the Hadley 15" / Haswell ULT Platform (a first state wherein the microcontroller is assured safe access to the non-volatile memory), the Nuvoton microcontroller holds the system in the reset state by asserting the RSMRST#_KBC signal. Upon information and belief, while the system is in the reset state, the Nuvoton microcontroller fetches program instructions or data from the SPI flash memory and loads the fetched instructions/data into a memory of the microcontroller, as evidenced by the SPI flash memory connections between the Nuvoton microcontroller and the SPI Flash, including the following figure:

Refer to "NCPE985x/ NPCE995x board design reference guide"
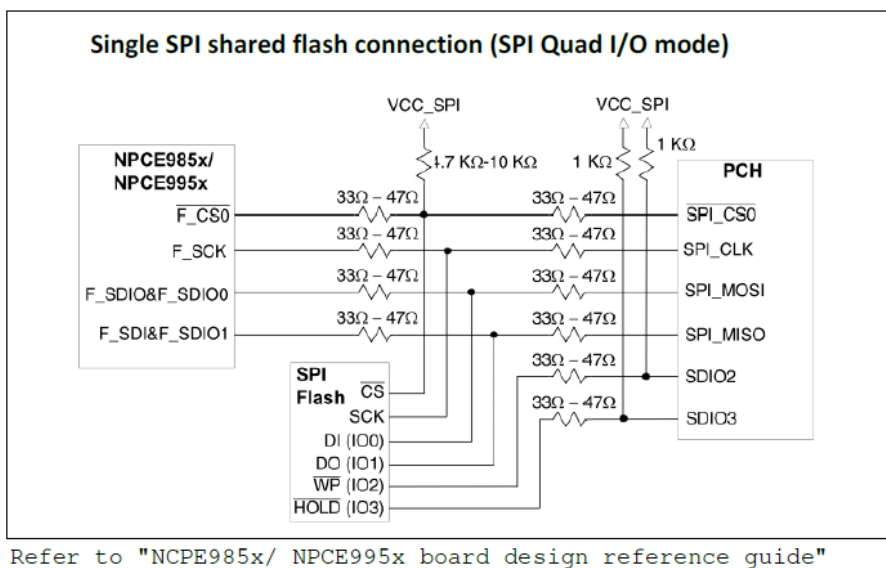
198.   When used as intended, the Nuvoton NPCE985x microcontroller on the Hadley 15" / Haswell ULT Platform performs a method comprising: after the program instructions or data have been loaded, switching access to the non-volatile memory from the microcontroller to the processor and releasing the system from the first state. For example, upon information and belief, after the Nuvoton microcontroller has fetched the instructions and/or data, it de-asserts the RSMRST#_KBC signal. Upon information and belief, this releases the system from the reset state and switches access

to the SPI Flash memory to the Intel chip set and processor.

199.   Computer manufacturers (*e.g.*, ODMs and OEMs) have been and are now directly infringing the '576 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States computers including the infringing Huron River Platform, Hadley 15" / Haswell ULT Platform, and reasonably similar products that perform the claimed methods when used as intended.

200.   Nuvoton America has been and is now directly infringing the '576 Patent by making or having made, designing, testing, using, selling, offering for sale, and/or importing into the United States the infringing NPCE795x, NPCE985x, and NPCE995x microcontrollers and reasonably similar products that perform the claimed methods when used as intended.

201.   Nuvoton America, directly and/or through subsidiaries or intermediaries, has infringed and continues to infringe (literally and/or under the doctrine of equivalents) one or more claims of the '576 Patent by making or having made, designing, testing, using, making available for another's use, selling or offering to sell, and/or importing into the United States the NPCE795x, NPCE985x, and NPCE995x microcontrollers and reasonably similar products that perform the claimed methods when used as intended.

202.   End users of the NPCE795x microcontroller, including Nuvoton's customers (*e.g.*, computer manufacturers) and individuals using computers that include the NPCE795x, NPCE985x, or NPCE995x microcontrollers, have been and still are infringing the '576 Patent by making, using, selling, offering to sell, and/or importing products that contain the NPCE795x, NPCE985x, or NPCE995x microcontrollers that perform the claimed methods when used as intended.

203.   End users of the Huron River Platform (*e.g.*, HP and other computer manufacturers) and individuals using computers that include the Huron River Platform, have been and still are infringing the '576 Patent by making, using, selling, offering to sell, and/or importing products that

contain the Huron River Platform and reasonably similar products that perform the claimed methods when used as intended.

204.   End users of the Hadley 15" / Haswell ULT Platform, (*e.g.*, HP and other computer manufacturers) and individuals using computers that include the Hadley 15" / Haswell ULT Platform, have been and still are infringing the '576 Patent by making, using, selling, offering to sell, and/or importing products that contain the Hadley 15" / Haswell ULT Platform and reasonably similar products that perform the claimed methods when used as intended.

205.   Upon information and belief, Nuvoton TW, directly and/or through affiliates, subsidiaries, intermediaries, or agents, directed or was at least partly responsible for the filing of the June 21, 2011, *ex parte* reexamination request filed at the U.S. Patent Office challenging the validity of all originally issued claims of the '576 Patent (Claims 1–23).

206.   Upon information and belief, Nuvoton America, directly and/or through affiliates, subsidiaries, intermediaries, or agents, directed or was at least partly responsible for the filing of the June 21, 2011, *ex parte* reexamination request filed at the U.S. Patent Office challenging the validity of all originally issued claims of the '576 Patent (Claims 1–23).

207.   At least since the date they first learned of the '576 Patent, Nuvoton TW and Nuvoton America have been and still are inducing infringement and contributing to infringement of the '576 Patent by providing its NPCE795x microcontroller (and reasonably similar microcontrollers) to other entities with knowledge of the '576 Patent and knowledge those microcontrollers will be part of additional infringing products made, used, sold, offered for sale, and/or imported by Nuvoton's customers.

208.   Nuvoton TW and Nuvoton America have contributed to the infringement of the '576 Patent. At least since the date they first learned of the '576 Patent, Nuvoton TW and Nuvoton America know that the NPCE795x microcontroller (and reasonably similar microcontrollers) has no

substantial non-infringing use because it is specifically designed, marketed, and sold to computer manufacturers for use in computers supporting a flash interface system that allow end users to take advantage of the method for sharing the SPI BIOS flash memory, as claimed in the '576 Patent. On information and belief, in the absence of reconfiguration, the NPCE795x and reasonably similar microcontrollers cannot be used for purposes other than infringing the '576 Patent.

209.   On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '576 Patent, Nuvoton actively induced infringement of the '576 Patent by their direct and indirect customers, including for example and without limitation, computer manufacturers, ODMs, and end users such as those using the NPCE795x microcontroller (and reasonably similar microcontrollers) in a computer. Nuvoton TW and Nuvoton America's acts of inducing infringement include marketing, promoting (including providing instructions for use), selling, offering for sale, and/or importing into the United States the NPCE795x microcontroller (and reasonably similar microcontrollers). On information and belief, at least as early as the date when Nuvoton TW and Nuvoton America learned of the '576 Patent, Nuvoton TW and Nuvoton America knew that the activities of their direct and indirect customers, including the activities taught by the aforementioned marketing and promotional materials, constituted direct infringement of the '576 Patent and specifically intended their direct and indirect customers to directly infringe the '576 Patent through their using, testing, selling, offering for sale, and/or importing into the United States the NPCE795x microcontroller and reasonably similar microcontrollers and other related products that perform the methods claimed in the '576 Patent.

210.   At least since the date when Nuvoton TW and Nuvoton America learned of the '576 Patent, Nuvoton TW and Nuvoton America's infringement of the '576 Patent has been willful and deliberate.

211.   On information and belief, Nuvoton TW and Nuvoton America will continue to

infringe, induce infringement of, and contribute to infringement of the '576 Patent unless enjoined by this Court.

212. As a result of Nuvoton TW and Nuvoton America's infringement of the '576 Patent, Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

213. As a result of Nuvoton TW and Nuvoton America's infringement of the '576 Patent, Microchip has suffered and will continue to suffer irreparable harm unless Nuvoton TW and Nuvoton America are enjoined against such acts by this Court.

214. As a result of Nuvoton TW and Nuvoton America's infringement of the '576 Patent, Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

PRAYER FOR RELIEF

WHEREFORE, Microchip prays for judgment and seeks relief against Nuvoton TW and Nuvoton America as follows:

(a) a judgment that Nuvoton TW and/or Nuvoton America have directly infringed, induced infringement of, or contributed to the infringement of one or more claims of the Asserted Patents;

(b) for a judgment and award of all damages sustained by Microchip as the result of Nuvoton TW and/or Nuvoton America's infringement, including supplemental damages for any continuing post-verdict infringement up until entry of the final judgment with an accounting as needed;

(c) for permanent injunctions enjoining Nuvoton TW, Nuvoton America, and anyone in concert with Nuvoton TW and Nuvoton America from infringing, inducing infringement of, or contributing to the inducement of infringement of the Asserted Patents;

54

(d)   for a judgment that Nuvoton TW and Nuvoton America's infringement has

been willful, and an award of enhanced damages pursuant to 35 U.S.C. § 284;

(e)   for a judgment and an award of attorneys' fees pursuant to 35 U.S.C. § 285 or

as otherwise permitted by law;

(f)   for a judgment and an award of all interest and costs incurred; and

(g)   for a judgment and an award of such other and further relief as the Court may

deem just and proper.

JURY DEMAND

Microchip demands a trial by jury on all issues presented in this Complaint so triable.

	/s/ Jeff Castellano
	John W. Shaw (No. 3362)
	Jeff Castellano (No. 4837)
	Nathan R. Hoeschen (No. 6232)
	SHAW KELLER LLP
	I.M. Pei Building
	1105 North Market Street, 12th Floor
OF COUNSEL:	Wilmington, DE 19801
Bruce W. Slayden II	(302) 298-0700
Brian C. Banner	jshaw@shawkeller.com
Darryl J. Adams	jcastellano@shawkeller.com
Truman H. Fenton	nhoeschen@shawkeller.com
SLAYDEN GRUBERT BEARD PLLC	*Attorneys for Plaintiff*
401 Congress Ave., Suite 1650	*Microchip Technology Inc.*
Austin, TX 78701	
(512) 402-3550	

Dated: January 7, 2019