IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CRADLE IP, LLC Plaintiff, v. TEXAS INSTRUMENTS, INC. Defendant.	)	Civ. Action No. _____ **COMPLAINT** Jury Trial Demanded

Plaintiff, Cradle IP, LLC ("Cradle"), hereby makes this complaint against Defendant Texas Instruments, Inc. ("TI") as follows:

NATURE OF ACTION

1. This is a patent infringement action in which Cradle seeks compensatory damages, past and future, amounting to no less than reasonable royalties for TI's infringement of United States Patent No. 6,874,049 (the "`049 Patent"), United States Patent No. 6,708,259 (the "`259 Patent"), and United States Patent No. 6,647,450 (the "`450 Patent") (collectively, the "Patents-in-Suit").

JURISDICTION AND VENUE

2. This action arises under the United States Patent Act, codified at 35 U.S.C. § 1 et seq., and in particular, 35 U.S.C. §§ 271 and 281-285.

3. This Court has original jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

4. This Court has personal jurisdiction over TI because, on information and belief, TI is incorporated in this District, has transacted business in this District, has committed and continues

to commit acts of infringement in this District and has established minimum contacts with this District.

5. Venue is proper under 28 U.S.C. §§ 1391(b), 1391(c) and 1400(b) because, on information and belief, TI is incorporated in this District, TI has transacted business in this District, has advertised and solicited business in this District, and has committed acts of infringement in this District.

PARTIES

6. Cradle is a limited liability company organized and existing under the laws of the State of Delaware, with its corporate headquarters and principal place of business at 82 Pioneer Way, Suite 103, Mountain View, California 94041.

7. On information and belief, TI is a corporation organized under the laws of the State of Delaware, with its corporate headquarters and principal place of business at 12500 TI Boulevard, Dallas, Texas 75243.

FACTUAL BACKGROUND

8. Cradle is a privately-held, majority-owned subsidiary of Cradle Technologies. Cradle Technologies owned the Patents-in-Suit until recently, when it assigned them to Cradle.

9. Cradle Technologies was founded in 1998 as a result of a spin-off from Cirrus Logic Incorporated ("Cirrus Logic"). Cirrus Logic is a semiconductor supplier specializing in high-precision analog and digital processing integrated circuits. The Chairman and CEO of Cradle Technologies is Dr. Suhas Patil, who was a co-founder of Cirrus Logic. Cirrus Logic was incorporated in 1984 upon its move to Silicon Valley, California and became a publicly traded company in 1989. Cirrus Logic was among the first semiconductor companies to be "fabless,"

i.e., it outsourced the fabrication of the semiconductors it designed. Now, many of the most successful semiconductor companies are “fabless”, for example Qualcomm Incorporated.

10. The research and development activities of that part of Cirrus Logic which later became Cradle Technologies, was part of an advanced research group focused on long-term development projects. Due to major cuts in Cirrus Logic’s R&D budgets, this group was encouraged to separate from Cirrus Logic and try to develop its technology on its own. Beginning in 1996, a major goal of this advanced research group was to create an efficient, scaleable, high performance, and general purpose multi-core microprocessor where the multiple cores would work with each other in a synergistic way to harness the power of the multiple cores. Two important members of the advanced research group who contributed to this project were David C. Wyland, who worked as a consultant with Cirrus Logic and later continued working as an employee at Cradle Technologies from its formation; and Cecil Kaplinsky, who was a consultant to Cirrus Logic and also later became one of the founders of Cradle Technologies.

11. Development of the general purpose multi-core microprocessor continued at Cradle Technologies after the separation from Cirrus Logic in 1998. One of the important goals of the design team at Cradle Technologies was to develop hardware implementations to manage resource allocations within the multi-core processor. During the development of their multi-core chips, Cradle Technologies encountered and overcame numerous technical challenges leading to a number of innovations. Those innovations led to 16 U.S. Patents, including the Patents-in-Suit.

12. Cradle Technologies designed and built four different iterations of multi-core chips, two of which were sold commercially. One of these chips, the CT3600 multi-core digital signal processor (“DSP”), was released in 2005 and received the Electronic Design, Strategy, News

Innovation Award in the processor category, beating out products by TI and Freescale Semiconductor, Inc.

TEXAS INSTRUMENTS' INFRINGING PRODUCTS

THE `049 PATENT

13. TI makes, manufactures, uses, sells, or offers to sell Multicore Digital Signal Processors that include a hardware semaphore. These products include, but are not limited to, the following Multicore Digital Signal Processors: TMS320TCI6487, TMS320TCI6488, TMS320TCI6489, TMS320C6670, TMS320C6671, TMS320C6672, TMS320C6674, TMS320C6678, TMS320TCI6602, TMS320TCI6604, TMS320TCI6608, TMS320TCI6612, TMS320TCI6614, TMS320TCI6616, TMS320TCI6618 and TMS320C6474. On information and belief, by making, manufacturing, using, selling, or offering to sell, without authority, such processors, TI has directly and indirectly infringed and is continuing to infringe, directly and indirectly, the `049 Patent. TI is liable for its infringement of the `049 Patent in violation of 35 U.S.C. § 271.

14. TI personnel have acknowledged the benefits of multi-core processors and the importance of hardware semaphores. TI recently identified the hardware semaphore as the preferred method of resource sharing.

> From a software perspective, utilizing the hardware semaphore module would limit the need for developing new code when a software system is migrating from a single-core device to a multi-core device. **For all intents and purposes, the semaphore module makes a shared resource in a multi-core device look like a dedicated resource in a single-core, multi-threaded implementation.**
>
> (Arnon Friedmann, *Hardware Semaphores Ensure Smooth Sailing for Multicore Systems*, Converge Network Digest (December 11, 2008) http://www.convergedigest.com/bp/bp1.asp?ID=556) (emphasis added)

15. TI's Multicore Digital Signal Processors are incorporated into numerous downstream products and are commonly used in communications infrastructure implementations. TI has reported that "[a]ccording to iSuppli, TI has over 80 percent market share for 3G and 2G wireless base stations, as well as leadership positions in emerging 4G standards such as WIMAX and LTE." (Texas Instruments, Multicore Fact Sheet, SPRT 549 (2010))

THE `259 PATENT

16. TI makes, manufactures, uses, sells, or offers to sell Microprocessors and OMAP devices including certain clock gating strategies. This includes, but is not limited to, the following Microprocessors and OMAP devices: AM389x Sitara ARM Microprocessors, OMAP34xx devices, OMAP35xx devices, OMAP36xx devices and OMAP4xxx devices. On information and belief, TI by making, manufacturing, using, selling, or offering to sell, without authority, such Microprocessors and OMAP devices, has directly and indirectly infringed and is continuing to infringe, directly and indirectly, the `259 Patent. TI is liable for its infringement of the `259 Patent in violation of 35 U.S.C. § 271.

17. According to TI, TI's Microprocessors and OMAP devices offer an autoidle feature, which allows clocks to be disabled and then restarted without latency in response to new activity on the interconnect. TI recommends use of the autoidle feature to reduce power consumption.

18. TI's Microprocessors and OMAP devices are incorporated into numerous downstream products, including cellular telephones and tablet computers. Citing a July 2009 Forward Concepts study, TI noted that it "is the number one supplier for wireless applications processors which includes mobile phones and converged devices." (Texas Instruments, Multicore Fact Sheet, SPRT 549 (2010))

THE `450 PATENT

19. TI makes, manufactures, uses, sells, or offers to sell Microprocessors and OMAP devices utilizing split transaction buses with target device command buffers. This includes, but is not limited to, the following Microprocessors and OMAP devices: AM389x Sitara ARM Microprocessors, OMAP34xx devices, OMAP35xx devices, OMAP36xx devices and OMAP4xxx devices. On information and belief, TI by making, manufacturing, using, selling, or offering to sell, without authority, such Microprocessors and OMAP devices, has directly and indirectly infringed and is continuing to infringe, directly and indirectly, the `450 Patent. TI is liable for its infringement of the `450 Patent in violation of 35 U.S.C. § 271.

20. According to TI, TI's Microprocessors and OMAP devices offer an interconnect including command acceptance or response signals from target devices. TI suggests using these mechanisms to determine time out errors in order to detect, log and reset target devices that are not functioning normally.

21. TI's Microprocessors and OMAP devices are incorporated into numerous downstream products, including cellular telephones and tablet computers. Citing a July 2009 Forward Concepts study, TI noted that it "is the number one supplier for wireless applications processors which includes mobile phones and converged devices." (Texas Instruments, Multicore Fact Sheet, SPRT 549 (2010))

TI'S KNOWLEDGE OF THE PATENTS-IN-SUIT

22. On information and belief, TI has been aware of the Patents-in-Suit since at least November 21, 2008.

23. On or about November 21, 2008, Cradle Technologies sent an email to Ray Simar, Manager of Multi-Core Solutions at TI, notifying TI of the Patents-in-Suit. Earlier that same

day, a voicemail message was left for Mr. Simar notifying him of the forthcoming email.

24. Thus, on information and belief, TI has had actual notice of the Patents-in-Suit since at least November 21, 2008.

FIRST CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 6,874,049)

25. Cradle incorporates by reference the allegations contained in paragraphs 1 through 24 above.

26. The `049 Patent, entitled "Semaphore with Interrupt Mechanism," issued on March 29, 2005, and named David C. Wyland as inventor. A copy of the `049 Patent is attached as Exhibit A. Cradle is the assignee of all rights, title and interests in and to the `049 Patent, and holds the right to sue and recover for past, present, and future infringement thereof.

27. TI has infringed and continues to directly and indirectly infringe one or more claims of the `049 Patent by, among other things, making, manufacturing, using, selling, or offering to sell goods and services that practice the `049 Patent in violation of 35 U.S.C. § 271, including but not limited to, Multicore Digital Signal Processors that include a hardware semaphore. These products include, but are not limited to, the following Multicore Digital Signal Processors: TMS320TCI6487, TMS320TCI6488, TMS320TCI6489, TMS320C6670, TMS320C6671, TMS320C6672, TMS320C6674, TMS320C6678, TMS320TCI6602, TMS320TCI6604, TMS320TCI6608, TMS320TCI6612, TMS320TCI6614, TMS320TCI6616, TMS320TCI6618 and TMS320C6474.

28. On information and belief, TI is further liable as an active inducer of infringement of the `049 Patent in violation of 35 U.S.C. § 271 by taking active steps to encourage and facilitate direct infringement by others, including but not limited to, manufacturers and end users of

communications infrastructure equipment incorporating certain Multicore Digital Signal Processors with hardware semaphores, with knowledge of that infringement.

29. On information and belief, TI is a contributory infringer of the `049 Patent in violation of 35 U.S.C. § 271 by making, using, selling, and/or offering for sale within the United States components that embody a material part of the inventions described in at least one claim of the `049 Patent, that are known by TI to be specially made or specially adapted for use in infringement of at least one of the claims of the `049 Patent, and that are not staple articles or commodities suitable for substantial, non-infringing use.

30. On information and belief, TI has been aware of and on notice of the `049 Patent since at least November 21, 2008. Plaintiff has given TI actual notice of its rights in the `049 Patent. TI has knowledge of the `049 Patent and has not ceased its infringing activities. TI's continuing infringement of the `049 Patent is willful and deliberate.

SECOND CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 6,708,259)

31. Cradle incorporates by reference the allegations contained in paragraphs 1 through 30 above.

32. The `259 Patent, entitled "Programmable Wake Up of Memory Transfer Controller in a Memory Transfer Engine," issued on March 16, 2004, and names David C. Wyland as inventor. A copy of the `259 Patent is attached as Exhibit B. Cradle is the assignee of all rights, title and interests in and to the `259 Patent, and holds the right to sue and recover for past, present, and future infringement thereof.

33. TI has infringed and continues to directly and indirectly infringe one or more claims of the `259 Patent by, among other things, making, manufacturing, using, selling, or offering to

sell goods and services that practice the `259 Patent in violation of 35 U.S.C. § 271, including but not limited to, Microprocessors and OMAP devices utilizing certain clock gating strategies. These products include, but are not limited to, the following Microprocessors and OMAP devices: AM389x Sitara ARM Microprocessors, OMAP34xx devices, OMAP35xx devices, OMAP36xx devices and OMAP4xxx devices.

34. Systems at issue in this action use the invention claimed in the `259 Patent by, at minimum, including memory transfer controllers that can be activated from an idle state based on data obtained by monitoring registers or other bus activity.

35. On information and belief, TI is further liable as an active inducer of infringement of the `259 Patent in violation of 35 U.S.C. § 271 by taking active steps to encourage and facilitate direct infringement by others, including but not limited to, manufacturers and end users of mobile hand sets and tablet devices incorporating certain Microprocessors and OMAP devices utilizing certain clock gating strategies, with knowledge of that infringement.

36. On information and belief, TI is a contributory infringer of the `259 Patent in violation of 35 U.S.C. § 271 by making, using, selling, and/or offering for sale within the United States components that embody a material part of the inventions described in at least one claim of the `259 Patent, that are known by TI to be specially made or specially adapted for use in infringement of at least one of the claims of the `259 Patent, and that are not staple articles or commodities suitable for substantial, non-infringing use.

37. On information and belief, TI has been aware of and on notice of the `259 Patent since at least November 21, 2008. Plaintiff has given TI actual notice of its rights in the `259 Patent. TI has knowledge of the `259 Patent and has not ceased its infringing activities. TI's continuing infringement of the `259 Patent is willful and deliberate.

THIRD CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 6,647,450)

38. Cradle incorporates by reference the allegations contained in paragraphs 1 through 37 above.

39. The `450 Patent, entitled "Multiprocessor Computer Systems with Command FIFO Buffer at each Target Device," issued on November 11, 2003, and names Cecil H. Kaplinsky as inventor. A copy of the `450 Patent is attached as Exhibit C. Cradle is the assignee of all rights, title and interests in and to the `450 Patent, and holds the right to sue and recover for past, present, and future infringement thereof.

40. TI has infringed and continues to directly and indirectly infringe one or more claims of the `450 Patent by, among other things, making, manufacturing, using, selling, or offering to sell goods and services that practice the `450 Patent in violation of 35 U.S.C. § 271, including but not limited to, Microprocessors and OMAP devices utilizing split transaction buses with target device command buffers. These products include, but are not limited to, the following Microprocessors and OMAP devices: AM389x Sitara ARM Microprocessors, OMAP34xx devices, OMAP35xx devices, OMAP36xx devices and OMAP4xxx devices.

41. Systems at issue in this action use the claimed invention of the `450 Patent by, at minimum, utilizing command buffers and bus control strategies, including signals indicating command acceptance or receipt.

42. On information and belief, TI is further liable as an active inducer of infringement of the `450 Patent in violation of 35 U.S.C. § 271 by taking active steps to encourage and facilitate direct infringement by others, including but not limited to, manufacturers and end users of mobile hand sets and tablet devices incorporating certain Microprocessors and OMAP devices

utilizing split transaction buses with target device command buffers, with knowledge of that infringement.

43. On information and belief, TI is a contributory infringer of the `450 Patent in violation of 35 U.S.C. § 271 by making, using, selling, and/or offering for sale within the United States components that embody a material part of the inventions described in at least one claim of the `450 Patent, that are known by TI to be specially made or specially adapted for use in infringement of at least one of the claims of the `450 Patent, and that are not staple articles or commodities suitable for substantial, non-infringing use.

44. On information and belief, TI has been aware of and on notice of the `450 Patent since at least November 21, 2008. Plaintiff has given TI actual notice of its rights in the `450 Patent. TI has knowledge of the `450 Patent and has not ceased its infringing activities. TI's continuing infringement of the `450 Patent is willful and deliberate.

DEMAND FOR JURY TRIAL

45. Cradle hereby demands trial by jury on all issues.

PRAYER FOR RELIEF

WHEREFORE, Cradle prays for the following relief:

1. Pursuant to 35 U.S.C. § 271, a Judgment that at least one claim of the `049 Patent has been infringed, and will continue to be infringed, by TI;

2. Pursuant to 35 U.S.C. § 271, a Judgment that at least one claim of the `259 Patent has been infringed, and will continue to be infringed, by TI;

3. Pursuant to 35 U.S.C. § 271, a Judgment that at least one claim of the `450 Patent has been infringed, and will continue to be infringed, by TI;

4. Pursuant to 35 U.S.C. § 284, compensatory damages, past and future, amounting to no less than reasonable royalties, prejudgment interest, and/or any other available damages based on any form of recoverable economic injury sustained by Cradle as a result of TI's infringement including enhanced damages for TI's willful infringement of the Patents-in-Suit;

5. Pursuant to 35 U.S.C. § 285, an award of Cradle's costs and attorneys' fees incurred in this action; and

6. For such other and further relief as this Court deems just and proper.

DATED this 16th day of December 2011.

Respectfully submitted,

Connolly Bove Lodge & Hutz LLP

/s/ Paul E. Crawford

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