

Xiaohua Huang

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IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF CALIFORNIA  
Oakland DIVISION

XIAOHUA HUANG, <i>pro se</i>	)	Case No. 4:18-cv-0707-JSW
Plaintiff,	)	Complaint for
v.	)	Patent Infringement
Open-Silicon Inc.	)	Demand for Jury Trial
Defendant.	)	

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Plaintiff XIAOHUA HUANG (hereinafter “Huang” or “Plaintiff”), for his complaint against Open-Silicon Inc.(Open-Silicon), alleges as follows:

**NATURE OF THE ACTION**

1. This is an action for patent infringement arising, under the Patent Law of the United States, 35 U.S.C. § 101, *et seq.*, out of U.S. Patent No. , 6,744,653 (hereinafter the “‘653 Patent”) issued on June 1, 2004, and

6,999,331 issued on February 14, 2006 (hereinafter the “‘331 Patent”) to Huang. This action is brought to remedy the infringement of the ‘653 and ‘331 Patents by Defendant Open-Silicon (hereinafter “Open-Silicon” or “Defendant”), including but not limited to Open-Silicon’s direct and/or contributory patent infringement, as well as Open-Silicon’s inducing of others to infringe Huang’s patented technology. This action seeks injunctive relief, compensatory damages, and costs against Open-Silicon.

### **THE PARTIES**

2. Huang is an individual residing in 505 Cypress point drive, #272, Mountain View, California 94043.

3. Open-Silicon Inc. has its principal office in 490 N. McCarthy Blvd. Suite 220, Milpitas, CA 95035. Open-Silicon has made and sold the accused products at issue in this lawsuit in the United States, including within this District.

### **JURISDICTION AND VENUE**

4. This action arises under the patent laws of the United States, 35 U.S.C. § 101, et seq. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a). Venue is proper in this District pursuant to 28 U.S.C. §§1391(b) - (c) and 1400(b) in that Defendant has used, sold, offered for sale, distributed, imported, exported, or otherwise commercially exploited in this District

products that infringe upon Huang's '653 and '331 Patents.

### **BACKGROUND FACTS**

5. A true and correct copy of each of the '653 and '331 Patents are attached hereto as Exhibits B and C respectively. The '653 Patent and '331 Patent are valid and owned by Plaintiff as the inventor.

6. In Nov. 2000 "Huang" found CMOS Micro Device Inc ("CMOS") to develop Ternary Content Addressable Memory (TCAM) which are used to perform the search function in internet networking router and switches. "Huang" is the owner of "CMOS", "CMOS" is a California corporation and having its office in 900 East Hamilton Ave, Room 100, Campbell, California, USA.

7. In Oct. 2001 "Huang" filed the provisional patent application titled "High-speed and low power content addressable memory (CAM) sensing circuits", some content of which was granted as US patent 6744653 "CAM cells and differential sense circuit for content addressable memory (CAM)" in June 1, 2004 and US patent 6999331 "CAM cells and differential sense circuit for content addressable memory (CAM)" in Feb. 14, 2006.

8. From Nov. 2000 to April, 2002, Huang finished the design of ternary content addressable memory (TCAM) with 0.18um TSMC technology which are covered by the '653 and '331 Patents. The TCAM designed by Huang is three times faster in speed and consume much less power than the same products in Market at that time. Then Huang shared his patent application with two Cisco executives, they are GM and VP of Router and Gigabit switches division respectively. They both consider that Huang's patents of TCAM are the best solution among all the vendors and asked Huang to review their next generation TCAM specification and do a feasible design to evaluate the possible product performance. The design data provided by Huang is still better than the best products in market today. '653Patent and '331Patent are the basic fundamentals to design high speed and low power TCAM used in Internet Router and Switches as well as Data Center Switches for Big Data and Cloud Computing up to today. The TCAM designed by Huang provide the example design using those two patents ('653, '331Patent ).

9. The patented TCAM IP developed by Huang has been highly recognized by the industry. In 2003 Huang was an invited speaker to present his TCAM design at networking symposium at Boston organized by the Industry Authority Linley Group. In 2015 Huang was also a

presenter of MEMCON 2015 in Santa Clara convention center to present his patented TCAM design.

10. In 2003 Huang found that Silicon design solution Inc (SDS) was selling TCAM IP, the claimed performance of SDS's TCAM IP (called eFlexCAM) and the method to achieve it is same as the TCAM designed by Huang. In 2005 Huang have lawyer Paul Rice send a letter with '653Patent to SDS. In 2010 SDS was acquired by eSilicon Corporation. In 2011 Huang found a product brochure of SDS's eFlexCAM on Internet (Exhibit E) and find that the content of SDS' s eFlexCAM: (A low power version of eFlexCAM employs a differential sense amplifier to reduce voltage swing of the Hitline and further reduce power required for search operations) are read by the claims of '653Patent and '331Patent. The '653Patent and '331Patent describe the differential match (hit) line sensing technique of comparison in content addressable memory. The claim 1,5,8,12,15 and 17 of '653Patent describe the different ways to achieve the match (Hit) line differential sensing technique to support the application of differential sense amplifier to match (Hit) line. The claim 1 and 9 of '331Patent describe the implementation and method of using differential sense amplifier to achieve low voltage swing of match(hit) line to reduce the power, which is same as described in the eFlexCAM product brochure of eSilicon Corporation. Up to now our patents are the only published materials to describe how to design the differential sensing of TCAMs

match line (Hit line) which are applicable to real products. The Independent expert report on the infringement of the content of eFlexCAM brochure is attached on Exhibit D.

11. On November, 2014 Huang was informed by an employee that Open-Silicon licensed TCAM IP from Silicon Design Solution Inc. (SDS) and integrated the TCAM IP of SDS into chips which Open-Silicon designed and sold to its customers.

**COUNT I: INFRINGEMENT OF U.S. PATENT NO. 6744653**

12. Plaintiff refers to and incorporates herein the allegations of Paragraphs 1-11 above.

13. On June 1, 2004, U.S. Patent No. 6744653 (the "'653 Patent") was duly and legally issued for a "CAM cells and differential sense circuit for content addressable memory (CAM)." A true and correct copy of the '653 patent is attached hereto as Exhibit B. Xiaohua Huang as inventor is the owner of all rights, title, and interest in and to the '653 patent.

14. On information and belief, Defendant Open-Silicon has infringed directly, indirectly, literally one or more of the claims of the '653 patent. Defendant Open-Silicon use, sell, import, and/or offer to sell infringing products and/or services, including but not limited to the chips that Open-Silicon designed and sold to its customers as a design service company, which infringe at least claim 1 and claim 5 of the '653 patent under 35

U.S.C. § 271.

15. Defendant Open-Silicon's acts of infringement have caused damage to Xiaohua Huang, and Xiaohua Huang is entitled to recover from the Defendant Open-Silicon for the damages sustained by Xiaohua Huang as a result of Open-Silicon's wrongful acts in an amount subject to proof at trial. Open-Silicon's infringement of Xiaohua Huang's exclusive rights under the '653 patent will continue to damage Xiaohua Huang, causing irreparable harm for which there is no adequate remedy at law, unless enjoined by this Court.

**COUNT II: INFRINGEMENT OF U.S. PATENT NO. 6999331**

16. Plaintiff refers to and incorporates herein the allegations of Paragraphs 1-15 above.

17. On Feb.14, 2006, U.S. Patent No. 6999331(the "'331Patent") was duly and legally issued for a "CAM cells and differential sense circuit for content addressable memory(CAM)." A true and correct copy of the '331 patent is attached hereto as Exhibit C. Xiaohua Huang as inventor is the owner of all rights, title, and interest in and to the '331 patent.

18. On information and belief, Open-Silicon has infringed and continue to infringe directly, indirectly, literally one or more of the claims of the '331 patent. Defendant Open-Silicon manufacture, use, sell, import, and/or offer to sell infringing products and/or services, including but not limited to the chips that Open-Silicon designed and sold to its customers as a design

service company, which infringe at least claim 1 of the '331 patent under 35 U.S.C. § 271.

19. Defendant Open-Silicon's acts of infringement have caused damage to Xiaohua Huang, and Xiaohua Huang is entitled to recover from the Defendant Open-Silicon for the damages sustained by Xiaohua Huang as a result of Open-Silicon's wrongful acts in an amount subject to proof at trial. Open-Silicon's infringement of Xiaohua Huang's exclusive rights under the '331 patent will continue to damage Xiaohua Huang, causing irreparable harm for which there is no adequate remedy at law, unless enjoined by this Court.

### **JURY DEMAND**

20. Pursuant to Fed. R. Civ. P. 38(b), plaintiff requests a trial by jury on all issues.

### **PRAYER FOR RELIEF**

WHEREFORE, Xiaohua Huang prays for the following relief:

- (a). A judgment in favor of Xiaohua Huang that Defendant has infringed and is infringing U.S. Patent Nos. 6744653 and 6999331;
- (b). A judgment that the '653 patent and '331 patent are valid and enforceable;
- (c). An order preliminarily and permanently enjoining Defendant and its subsidiaries, parents, officers, directors, agents, servants, employees, affiliates, attorneys and all others in active concert or participation with

any of the foregoing, from further acts of infringement of the '653 patent and '331 patent patent;

(d). An accounting for damages resulting from Defendant's infringement of the '653 patent and '331 patent ;

(e). An assessment of interest on damages;

(f). A judgment awarding damages to Xiaohua Huang for its costs, disbursements, expert witness fees, and attorneys' fees and costs incurred in prosecuting this action, with interest and as otherwise provided by law;

(g). For such other and further relief as this Court may deem just and equitable.

Dated: May 12, 2018

Respectfully Submitted,

Xiaohua Huang

A handwritten signature in black ink, appearing to be 'XH' or similar initials, on a light blue background.

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Exhibit B	6744653 patent
Exhibit C	6999331 patent
Exhibit D	Expert witness report
Exhibit E	The eFlexCAM brochure

#### CERTIFICATE OF SERVICE

I hereby certify that the foregoing document was filed with the Court's CM/ECF system which will provide notice on all counsel deemed to have consented to electronic service. All other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing document by email and mail on this day.

Dated: May 15, 2018

/s/ xiaohua haung

Xiaohua Huang