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Xiaohua Huang
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Email: paul_huang1010@outlook.com
Pro Se   Plaintiff

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UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

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Xiaohua Huang   *Pro Se,*
 	
                    Plaintiff,
 	
        v.
 	
Enterasource, LLC
 	
                    Defendant.
	Case No. 8:21-cv-284-JVS/JDE
	
	MR. Huang's first amended complaint against Enterasource, LLC for patent infringement
	
	                 Demand for Jury Trial

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This is a civil action. Plaintiff Xiaohua Huang (hereinafter "Huang" or "Plaintiff") alleges as follows:

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NATURE OF THE ACTION

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1. This is an action for patent infringement arising out of U.S. Patent No. 6,744,653 (hereinafter the "653 Patent") issued on June 1, 2006 and U.S. Patent No. 6,999,331 (hereinafter the "331 Patent") issued on Feb 14, 2006 to Xiaohua Huang. This action is brought to remedy the infringement of '653patent and '331Patent by Defendant Enterasource LLC.(Enterasource) (hereinafter "Enterasource," or "Defendant").. Plaintiff Huang mailed a letter to Enterasource on December, 2020 to inform Enterasource about the patents and the infringement, until now Plaintiff has not received response from Enterasource

THE PARTIES

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2. Xiaohua Huang is an individual, he current resides in Los Gatos, CA95030.

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Huang has developed the state of the art high speed circuit and low power U.S. patented TCAM designs to build IC chips used inside of Internet IP Routers("Routers")，Wireless routers, Ethernet Switches("Switches") and Data Center Switches etc. since the year of 2000. The circuit design invented in '653patent and '331patent have also been used in CPU, RAM memory, Flash memory and EEPROM.

3. Enterasource, LLC is or purports to be a California company having its mailing address in 9 Marconi Irvine, CA 92618 with its telephone number: (844) 368-3727 and website https://www.enterasource.com/ . Enterasource is a refurbish company and a reseller of networking Switches &Routers, Storage and Servers.

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 its operation office to do business daily and regularly in this District.

BACKGROUND FACTUAL ALLEGATION

5. A true and correct copy of the '653patent and '331patent is attached hereto as Exhibit B and C. The '653patent and '331patent is valid and owned by Plaintiff Mr. Huang as the inventor.

6. In Nov. 2000 "Huang" found CMOS Micro Device Inc. "CMOS"）to develop Ternary Content Addressable Memory (TCAM). "Huang" is the owner of "CMOS", "CMOS" is a California corporation and having its office in Campbell, California.   TCAM are used to perform the search function in

internet networking router, switches and Data Center Switches.

7. From November, 2000 to October, 2002, Huang finished the design of ternary content addressable memory (TCAM) with 0.18um and 90nm TSMC technology which are covered by the '653 Patent and 'RE259 patent. The TCAM designed by Huang is tens to hundreds of times faster in speed and consume much less power than the same products in Market at that time.

8. From 2011 to 2018 Plaintiff reversed numerous TCAM chips of NetlogicMicrosystem and TCAM chips of Renesas Electronics. With the help of Cellixsoft Corporation and Wuxi Hengyu Micro Electronics Ltd. Plaintiff obtained the evidence that the TCAM chips of Netlogic Microsystems and TCAM chips of Renesas Electronics, Inc. used the content of US patent 6744653 and RE45259. The TCAM chips of Netlogic Microsystems and Renesas Electronics infringed the claim1 of '653patent and claim 29 of US patent RE45259. Most switches and Routers have used the TCAM chips of NetlogicMicrosystems Inc. and Renesas.

9. In 2003 Plaintiff found that a company called Silicon Design Solution Inc.(SDS) selling TCAM design same as the TCAM designed by CMOS Micro Device Inc.. Recently Plaintiff found that the some IC circuit and TCAM used in the Router and Switches read the claim 17 of '653 patent and claim 29 of 'RE259 patent.

10. The patented TCAM developed by Huang has been 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.

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THE INFRINGING PRODUCTS WHICH DEFENDNAT MAY HAVE BOUGHT AND SOLD

11. Based on the information obtained that the products sold by Defendant, including but not limited InfiniScale 18 Port 40Gb QDR InfiniBand Switch, Nimble Storage [21x 4TB HDD, 3x 960GB SSD, 2x 16Gb Fiber Channel], PowerVault MD1280 Storage Array 84x 200GB SAS 2.5" 12G SSDs, PowerEdge Servers which contains the IC with the function schematic in Figure1 and Figure 2 in the below.
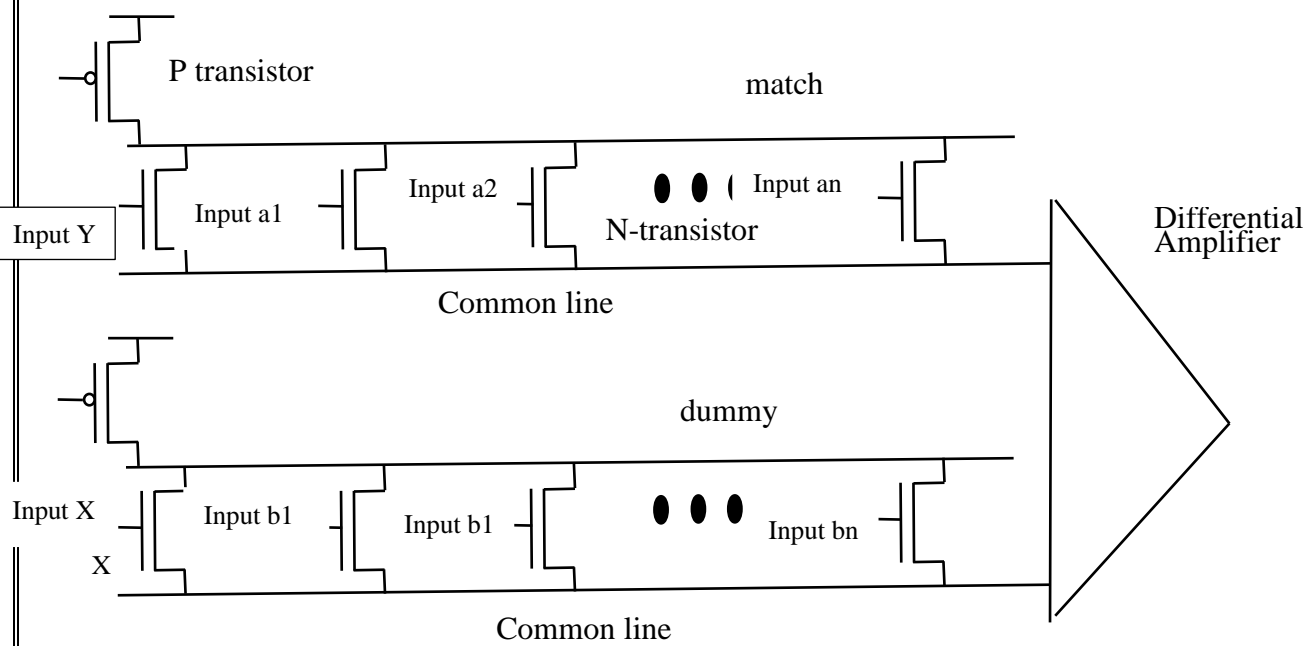
Figure 1.   differential sensing circuit used in TCAM, RAM,Flash memory and EEPROM.

Based on the data and information which Plaintiff obtained that the circuit in Figure 1 are used in the TCAM circuit in Networking Switches (InfiniScale 18 Port 40Gb QDR InfiniBand Switches)., the circuit of RAM(RAM used in PowerEdge Servers),the circuit of Flash memory in SSD, Hard disk Driver (Nimble Storage [21x 4TB HDD, 3x 960GB SSD, 2x 16Gb Fiber Channel], PowerVault MD1280 Storage Array 84x 200GB SAS 2.5" 12G SSDs, PowerEdge Servers). Here the working principle of Figure 1 is

explained, the N transistor X connected to dummy line in the very left side is half size of the other N transistors, say if all the other N transistor conduct current one unit amount when it is ON, the transistor X conduct half unit amout current when it is ON. The Input X is in high logic level, the transistor X is ON, its current is just half of the other N-transistor, all the other N transistor connected to dummy line are OFF, and no current. The N transistors connected to match line (in CAM case, but it is bit line for RAM and Nonvalitle RAM) can either ON or OFF. If all the N transistors connected to match line(or bit line) (in bit line case, INFRINGEMENT UNDER THE DOCTRINE OF EQUIVALENTS) are OFF, then the common line related to dummy line gain the half current from tranisstor X, but the common line related to match line gain no current, the positive feedback sense amplier in the very right side sense and amplify the signal difference to sense the logic states that all the N transistors connected to match line (or bit line in RAM,Flash memory and EEPROM) are OFF.

    On the other hand: if any N-transistor connected to match line(or bit line) is ON, it will conduct one unit amount current to the common line related to match line (bit line in RAM,Flash memory and EEPROM), and this current is twice (or more if more than one N transistors are ON) amount of the current as the current to the common line related to dummy line through transistor X, then the sense amplifier will sense and amplify the signal difference to detect this logic state that at least one of the N-transistors connected to match line are ON.

    For the RAM,Flash memory and EEPROM, the dummy line are the regular bit line which are not in use to read data, it is used as reference corresponding to dummy line in TCAM case; the bit line in use to read data corresponding to the match line in CAM case. If there is a N transistor connected to bit line is ON, which is reading logic "1", if no N trnasistor connected to bit line is ON, it read logic "0".

| Claim 17 of US patent 653patent | The circuit in Figure 1 are used in the TCAM circuit in Networking Switches (InfiniScale 18 Port 40Gb QDR InfiniBand Switches)., the circuit of RAM(RAM used in PowerEdge Servers),the circuit of Flash memory in SSD, Hard disk Driver (Nimble Storage [21x 4TB HDD, 3x |

	960GB SSD, 2x 16Gb Fiber Channel], PowerVault MD1280 Storage Array 84x 200GB SAS 2.5" 12G SSDs, PowerEdge Servers)
(1)A method for sensing a logic state of a match line in a content addressable memory (CAM), comprising:	This section (1) of the claim is a preamble, "a match line match line in a content addressable memory (CAM)" could be "a bit line in RAM" or " a bit line in Flash memory or EEPROM"
(2) sensing a signal on a first common line, wherein the signal on the first common line is related to a signal on the match line;	In Figure 1, one common line is connected to the related match line through many N-transistors, this common line is referred as first common line and connected to a differential amplifier, this differential amplifier sense the signal in the first common line which is related to the signals in the match line through many N transistors. The bit line of RAM, Flash memory and EEPROM is equivalent to Match line of TCAM
(3)providing a reference signal on a	In Figure 1. The second

second common line based on a plurality of dummy transistors;	common line are connected to dummy line through many N transistors, the signal on the second common line is a reference to the signal in the first common line for the differential sense amplifier.
(4)determining a difference between the sensed signal on the first common line and the reference signal on the second common line; amplifying the determined difference with a positive feedback amplifier; and providing an output value indicative of the logic state of the match line based on the amplified difference.	(4) The circuit schematic in Figure 1 has the 1st common line connected to match line, 2nd common line connected to dummy line and the differential amplifier; the difference in the 1st common line and the 2nd common line are the input of the differential amplifier and is amplified to output a value of the logic state based on the difference of the 1st common line and the 2nd common line in Figure1. The 2nd common line always obtain half amount current from transistor X, the first common line obtain no current if all the N transistors connected to match line are OFF, otherwise the first common line will obtain twice amount current (or more) if there

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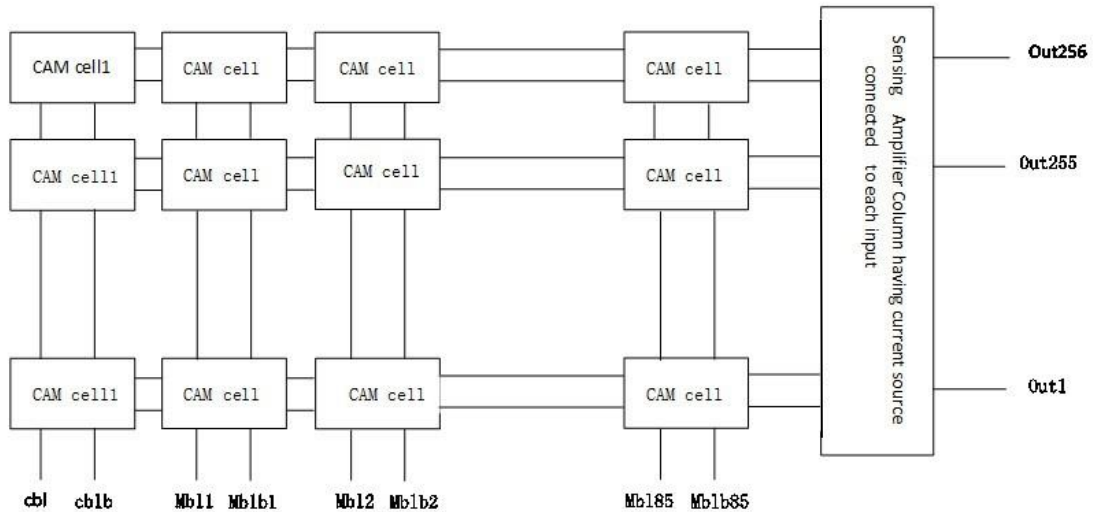| | is at least one N transistor connected to match line is ON. So the half amount current obtained in second common line connected to dummy line trough N transistor(half size X N transistor is ON) |
| | The bit line of RAM, Flash memory and EEPROM is equivalent to Match line of TCAM |

Figure 2. One schematic of TCAM used in the accused networking Switch.

Claim 1 of US patent 6999331	The TCAM in accused networking Switch

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(1) A ternary content addressable memory (TCAM) comprising: an array of TCAM cells arranged in a plurality of rows and a plurality of columns;	This section(1) of the claim read the CAM cell box in Figure2.
(2) a plurality of match lines, one match line for each row of TCAM cells and operatively coupled to a plurality of output transistors for the TCAM cells in each row; *a plurality of dummy lines, one dummy line for each row of TCAM cells and operatively coupled to a plurality of dummy transistors for the TCAM cells in each row;*	This Section(2) of the claim read the two line (match, dummy) connected to each CAM cells in each row in Figure 2.
(3)a plurality of match data bit lines and their complements, one pair of match data bit line and its complement for each column of TCAM cells to provide a match data and its complement to compare with the content stored in each TCAM cell of that column;	This Section(3) of the claim read the line of mbl1 and mblb1 connected to each CAM cell in each column.

(4)a column of dummy TCAM (DTCAM) cells, each connected to the match line and the dummy line in each row; *a pair of dummy match data bit line and its complement for the column of DTCAM cells to provide a dummy match data and its complement to compare with the content stored in each DTCAM cell;*	This section(4) of the claim read the very left column in Figure2.
(5)a sense amplifier connected to the match line and the dummy line in each row; and *current sources connected to each of the match line and the dummy line in each row.*	This section (5)of the claim read the very right column which is the sense amplifier column connected to the each row of CAM cell through match and dummy line.

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

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

13. On June.1, 2004, U.S. Patent No.6,744,653 (the "'653Patent") 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 have infringed and continue to infringe directly, indirectly, literally, on Doctrine of Equivalent one or more of the claims of the'653patent through buying/selling the InfiniScale 18 Port 40Gb QDR InfiniBand Switch, Nimble Storage [21x 4TB HDD, 3x 960GB SSD, 2x 16Gb Fiber Channel], PowerVault MD1280 Storage Array 84x 200GB SAS 2.5" 12G SSDs, PowerEdge Servers circuits which have infringed at least claim 17 of the '653patent as analyzed in paragraph11 under 35 U.S.C. § 271(a), (b) and(c).

15. On information and belief, Defendant have induced its Customers to have infringed and continue to infringe directly, indirectly, literally, on Doctrine of Equivalent one or more of the claims of the '653patent by transferring data through Networking Routers and Switches of Internet, Server and Storage. Those Networking Routers &Switches, Server and Storage using "TCAM" and related circuit which have infringed at least claim 17 of the'653patent as analyzed in paragraph 11 under 35 U.S.C. § 271(a), (b) and (c).

16. On information and belief, Defendant have made contributory infringement directly, indirectly, literally, on Doctrine of Equivalent to one or more of the claims of '653patent by its customers adding its Switches &Routers, Servers and Storage to Internet System and transferring data through the TCAM related circuit for its basic ACL, QoS function, reading and writing data in Server and Storage which have infringed at least claim 17 of the'653patent as analyzed in paragraph 11 under 35 U.S.C. § 271(a), (b) and(c). The using of TCAM to achieve ACL and QoS function of routers and switches accused as well as reading and writing data in Server and Storage are completely not a staple article or commodity of commerce suitable for substantial non-infringing use.

17. Defendant's acts of infringement, inducing infringement and contributory infringement have caused damage to Xiaohua Huang, and Xiaohua Huang is entitled to recover from Defendant for the damages sustained by Xiaohua Huang as a result of Defendant's wrongful acts in an amount subject to proof at trial. Defendant's infringement of Xiaohua Huang exclusive rights under the '653patent patent will continue to damage Xiaohua Huang, causing irreparable harm for which there is no adequate remedy at law, unless enjoined by this Court. Defendant 's infringement entitle Xiaohua Huang to recover damages under 35 U.S.C.§284 and to attorneys' fees and costs incurred in prosecuting this action under35 U.S.C. § 285.

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

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

19. 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.

20. On information and belief, Defendant have infringed and continue to infringe directly, indirectly, literally, on Doctrine of Equivalent one or more of the claims of the'331patent through buying/selling Networking Switches (InfiniScale 18 Port 40Gb QDR InfiniBand Switches) those product devices containing "TCAM " which have infringed at least claim 1 of the '331patent under 35 U.S.C. § 271(a), (b) and(c).

32. On information and belief Defendant have induced its Customers to have infringed and continue to infringe directly, indirectly, literally, on

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Doctrine of Equivalent one or more of the claims of the '331patent by transferring data through Networking Routers and Switches of Internet and Data centers. Those Networking Routers and Switches using "TCAM" which have infringed at least claim 1 of the'331patent under 35 U.S.C. § 271(a), (b) and (c).

33. On information and belief, Defendant have made contributory infringement directly, indirectly, literally, on Doctrine of Equivalent to one or more of the claims of '331patent by its customers adding its Switches and Routers to Internet System and transferring data through the TCAM for its basic ACL and QoS function which have infringed at least claim 1 of the'331patent under 35 U.S.C. § 271(a), (b) and(c). The using of TCAM to achieve ACL and QoS function of routers and switches accused are completely not a staple article or commodity of commerce suitable for substantial non-infringing use.

34. Defendant's acts of infringement, inducing infringement and contributory infringement have caused damage to Xiaohua Huang, and Xiaohua Huang is entitled to recover from Defendant for the damages sustained by Xiaohua Huang as a result of Defendant' s wrongful acts in an amount subject to proof at trial. Defendant's infringement of Xiaohua Huang exclusive rights under the '331patent patent will continue to damage Xiaohua Huang, causing irreparable harm for which there is no adequate remedy at law, unless enjoined by this Court. Defendant's infringement entitle Xiaohua Huang to recover damages under 35 U.S.C.§284 and to attorneys' fees and costs incurred in prosecuting this action under35 U.S.C. § 285.

JURY DEMAND

34. Pursuant to Fed. R. Civ. P. 38(b), Plaintiff Xiaohua Huang 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 No 6744653 and 6999331;

(b). A judgment that the '653 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 '653patent and '331patent;

(d). An accounting for damages resulting from Defendant's infringement of the '653 and '331 patent under 35 U.S.C. § 284;

(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 pursuant to 35 U.S.C. § 285 and as otherwise provided by law;

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

Dated: April 11, 2021   Respectfully Submitted,

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Xiaohua Huang
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Tel: 669 273 5650
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Exhibit B   US patent No. 67446531

Exhibit C   US patent No. 6999331

CERTIFICATE OF SERVICE

I hereby certify that the foregoing document was mailed to the Clerk of the Court and will be filed with the Court's CM/ECF system which will provide notice on all counsel deemed to have consented to electronic service. Defendant and 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 mail and email on this day.

Dated: April 11, 2021

By /S/ Xiaohua Huang

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