

THE PARTIES

Xiaohua Huang
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Pro Se Plaintiff

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

Xiaohua Huang *Pro Se*,
Plaintiff,
v.
Big Data Supply Inc.
Defendant.

Case No. 8:21-cv-0282-JVS-JDE

**MR. Huang's first amended complaint
against Big Data Supply Inc.
for patent infringement**

Demand for Jury Trial

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

NATURE OF THE ACTION

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 to Xiaohua Huang. This action is brought to remedy the infringement of '653patent by Defendant Big Data Supply Inc. (Big Data Supply) (hereinafter "Big Data Supply," or "Defendant").

THE PARTIES

2. Xiaohua Huang is an individual, he resides in Los Gatos, CA 95030. 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"), Data Center Switches, CPU,

1 Servers and RAM memory etc. since the year of 2000.

2
3 3. Big Data Supply Inc. has its operation in 1736 E. Borchard Ave. Santa Ana,
4 CA 92705 having its mailing address in 1701 E. Edinger Ave. E5 Santa Ana, CA
5 92705, USA; Kingsfordweg 151 Amsterdam Sloterdijk, Netherlands and 137
6 Market St., Level 6, Singapore 048943, Singapore. Big Data Supply is a reseller of
7 Storage, RAM, Servers and networking Switches & Routers.

8
9 **JURISDICTION AND VENUE**

10 4. This action arises under the patent laws of the United States, 35 U.S.C.
11 § 101, *et seq.* This Court has jurisdiction over the subject matter of this action
12 pursuant to 28 U.S.C. §§ 1331 and 1338(a). Venue is proper in this District
13 pursuant to 28 U.S.C. §§ 1391(b) - (c) and 1400(b) in that Defendant has its
14 operation office to do business daily and regularly in this District.

15 **BACKGROUND FACTUAL ALLEGATION**

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

19 6. In Nov. 2000 "Huang" found CMOS Micro Device Inc. "CMOS") to
20 develop Ternary Content Addressable Memory (TCAM). "Huang" is the owner
21 of "CMOS", "CMOS" is a California corporation and having its office in
22 Campbell, California. TCAM are used to perform the search function in
23 internet networking router, switches and Data Center Switches.

24
25 7. From November, 2000 to October, 2002, Huang finished the design of
26 ternary content addressable memory (TCAM) with 0.18um and 90nm TSMC
27 technology which are covered by the '653 Patent. The TCAM designed by
28 Huang is tens to hundreds of times faster in speed and consume much less

power than the same products in Market at that time. The circuits invented in US patent 6744653 have also been used in the RAM, CPU, Flash memory and EEPROM etc.

**THE INFRINGING PRODUCTS WHICH DEFENDANT
MAY HAVE BOUGHT AND SOLD**

8. Based on the information obtained that the products sold by Defendant, including but not limited to DDR4-2933, DDR4-2666, DDR4-2400, DDR4-2133, DDR4-1866, DDR4-1600, DDR4-1333, DDR4-1066, Power 5 Server etc., Desktop Hard Drives, Laptop Hard Drives, Server Hard Drives, SATA, SSD, Tape Drive products, IP PHONES & TELECOM EQUIPMENT, Fire Wall products, DESKTOPS, TABLETS, LAPTOPS, Networking Switches (Power connect 2700, 3500, 5400, 6200 Series).

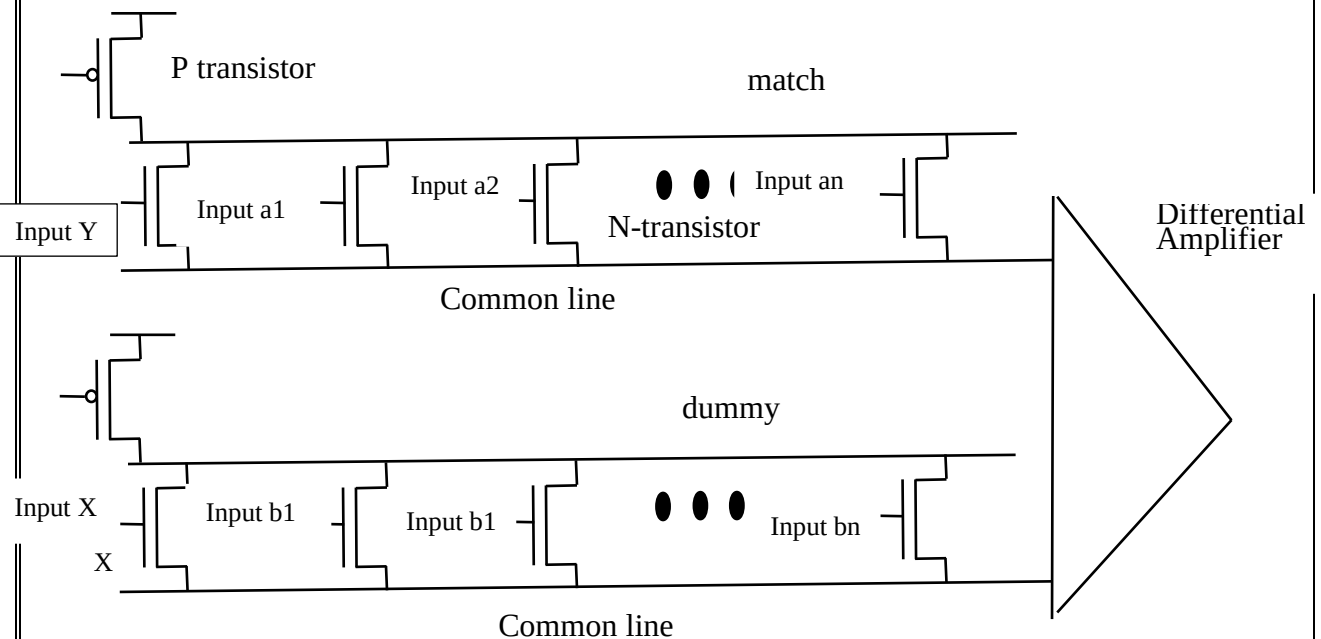


Figure 1. differential sensing circuit used in TCAM, RAM, Flash memory and EEPROM.

Based on the data and information which Plaintiff obtained that the circuit in Figure 1 are used in the TCAM circuit in Networking Switches (Power connect 2700, 3500, 5400, 6200 Series)., the circuit of RAM(DDR4-2400 etc.), the circuit of

Flash memory in SSD, Hard disk Driver and Tape driver, the circuit of EEPROM used in DESKTOPS, TABLETS, LAPTOPS, IP PHONES & TELECOM EQUIPMENT and 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 amount 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 Nonvolatile 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 transistor X, but the common line related to match line gain no current, the positive feedback sense amplifier 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 transistor 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 (Power connect 2700, 3500, 5400, 6200 Series)., the circuit of RAM(DDR4-2400 etc.),the circuit of Flash memory in SSD, Hard disk Driver and Tape driver, the circuit

	of EEPROM used in DESKTOPS, TABLETS, LAPTOPS, IP PHONES & TELECOM EQUIPMENT and 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

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 through 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

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

9. Plaintiff Mr. Huang refers to and incorporates herein the allegations of Paragraphs 1-8 above.

10. 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.

11. 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 DDR4-2933,DDR4-2666,DDR4-2400,DDR4-2133,DDR4-1866,DDR4-1600,DDR4-1333,DDR4-1066, Power 5 Server etc., Desktop Hard Drives, Laptop Hard Drives, Server Hard Drives, SATA, SSD, Tape Drive products, IP PHONES & TELECOM EQUIPMENT, Fire Wall products,

1 DESKTOPS, TABLETS, LAPTOPS, Networking Switches(Power connect 2700,
2 3500, 5400, 6200 Series), those devices containing the circuits as shown in Figure1
3 which have infringed at least claim 17 of the '653patent as analyzed in paragraph 8
4 under 35 U.S.C. § 271(a), (b) and(c).

5 12. On information and belief, Defendant have induced its Customers to have
6 infringed and continue to infringe directly, indirectly, literally, on Doctrine of
7 Equivalent one or more of the claims of the '653patent by transferring data
8 through Networking Routers and Switches of Internet, DDR, SSD, Hard disk
9 driver and Servers. Those Networking Routers and Switches, DDR, SSD, Hard
10 disk driver and Servers. using the circuit in Figure1 which have infringed at
11 least claim 17 of the'653patent as analyzed in paragraph 8 under 35 U.S.C. §
12 271(a), (b) and (c).

13 13. On information and belief, Defendant have made contributory
14 infringement directly, indirectly, literally, on Doctrine of Equivalent to one or
15 more of the claims of '653patent by its customers adding its Switches, DDR4
16 RAM, SSD and hard disk driver to computer, server and Internet System with its
17 basic read/Write,ACL and QoS function and transferring data through DDR and
18 Servers using the circuit in Figure 1 for which have infringed at least claim 17 of
19 the'653patent as analyzed in paragraph 8 under 35 U.S.C. § 271(a), (b) and(c).
20 The using of patented circuit to achieve data read/write in computer Server, ACL
21 and QoS function of routers and switches accused and transferring Data through
22 circuit in Figure 1 for DDR are completely not a staple article or commodity of
23 commerce suitable for substantial non-infringing use.

24 14. Defendant's acts of infringement, inducing infringement and contributory
25 infringement have caused damage to Xiaohua Huang, and Xiaohua Huang is
26 entitled to recover from Defendant for the damages sustained by Xiaohua Huang
27
28

1 as a result of Defendant's wrongful acts in an amount subject to proof at trial.
2 Defendant's infringement of Xiaohua Huang exclusive rights under the
3 '653patent patent will continue to damage Xiaohua Huang, causing irreparable
4 harm for which there is no adequate remedy at law, unless enjoined by this
5 Court. Defendant 's infringement entitle Xiaohua Huang to recover damages
6 under 35 U.S.C.§284 and to attorneys' fees and costs incurred in prosecuting this
7 action under35 U.S.C. § 285.

8 **JURY DEMAND**

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10 15. Pursuant to Fed. R. Civ. P. 38(b), Plaintiff Xiaohua Huang requests a trial
11 by jury on all issues.

12 **PRAYER FOR RELIEF**

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14 WHEREFORE, Xiaohua Huang prays for the following relief:

15 (a). A judgment in favor of Xiaohua Huang that Defendant has infringed
16 and is infringing U.S. Patent No 6744653;

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18 (b). A judgment that the '653 patent are valid and enforceable;

19 (c). An order preliminarily and permanently enjoining Defendant and its
20 subsidiaries, parents, officers, directors, agents, servants, employees, affiliates,
21 attorneys and all others in active concert or participation with any of the
22 foregoing, from further acts of infringement of the '653patent;

23
24 (d). An accounting for damages resulting from Defendant's infringement of
25 the '653 patent under 35 U.S.C. § 284;

26 (e). An assessment of interest on damages;

27 (f). A judgment awarding damages to Xiaohua Huang for its costs,
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1 disbursements, expert witness fees, and attorneys' fees and costs incurred in
2 prosecuting this action, with interest pursuant to 35 U.S.C. § 285 and as
3 otherwise provided by law;
4

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

6 Dated: April 11, 2021

Respectfully Submitted,

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8

9 Xiaohua Huang

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11 Tel: 669 273 5633

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14 Exhibit B US patent No. 67446531
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17 CERTIFICATE OF SERVICE

18 I hereby certify that the foregoing document was mailed to the Clerk of the Court and
19 will be filed with the Court's CM/ECF system which will provide notice on all counsel deemed to
20 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.

21 Dated: April 11, 2021

22 By /S/ Xiaohua Huang
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