No. ___ _____

In the
Supreme Court of the United States

IN RE Xiaohua Huang's patent
infringement litigation
Xiaohua Huang *pro se*
Petitioner

V.

Huawei Technology Ltd.
Respondents

On Writ of Certiorari to the United States
Court of Appeals for the Federal Circuit
and the US District Court of Eastern Texas

APPENDIX

for

PETION FOR A WRIT OF CERTIORARI

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Table of Content

		sold both in USA and China to prove that Huawei made perjury, then Huawei made further perjured that the TCAM that Huawei used is different from the advertised product datasheet and not infringe US patent 6744653 and 6999331. The Data sheet of the TCAM of eSilicon Corporation infringed US patent 6744653 and 6999331. 3. The 74 products Mr. Huang asked to add are all sold in the United states and most of them contains TCAM which infringed the US patent 6744653, 6999331 and RE45259, so it is a good cause, Magistrate's no good cause is a definitely fraudulent statement. 4. The Protective Order allow that up to 3 independent expert to access the confidential material, the expert can write the opinion on

		infringement or not without disclosing the technical design details. The Panel just state: "We agree with the district court." without any good cause. It is very erroneous. For the attorney fees and export cost. The District Court completely took Huawei's perjured declaration. 1. It is Huawei's Internal Counsel Pengyan Li repeatedly asked Mr. Huang to discuss the settlement with her, Pengyan Li made perjured testimony. 2. Plaintiff generated reverse engineering data of several TCAM chips used in Huawei's products, which proved that Huawei infringed US patent RE45259 prior to litigation. 3. Plaintiff made motion to compel defendant to disclose non confidential information and confidential information to experts during

		Discovery,which are Plaintiff's right,not frivolous at all.
a15-a16	17-1505 Dkt.101	Order and opinion of the US Court of Appeal for the Federal Circuit. Panel denied Mr. Huang's petition for Rehearing EN BANC without any opinion
A17	2:15-cv-1413 Dkt.222	Judge Gilstrap wrongfully ordered: that Plaintiff recover nothing ,.... Defendant Huawei shall recover from Plaintiff Xiaohua Huang the sum of $534,999 in attorneys' fees and costs and $69,037.50 in additional expert fees, for a total of $604,036.71 without a valid cause.
a18-a20	2:15-cv-1413 Dkt.213	Judge Gilstrap wrongfully ordered: that Huawei is awarded $534,999.21
A21-a22	2:15-cv-1413 Dkt.212	Judge Gilstrap threaten that if Mr. Huang files another paper ...making allegations of perjury or fraud to Huawei and Judges, he will be required to appear for a show cause hearing to determine

		whether additional sanctions are appropriate. Then in Dkt.216 Plaintiff Huang provided all the evidence that Huawei made perjured testimony and Judge Payne and Gilstrap made fraudulent statement, Gilstarp ignored Huang's filing Dkt.216.
a23-a32	2:15-cv-1413 Dkt.204	Magistrate Judge Payne took Huawei's perjury which contradicted factual material evidence and made completely wrongful report and recommendation to sanction Huang's money under Huawei's attorney's instruction.
a33	2:15-cv-1413 Dkt.182	Judge Gilstrap wrongfully ordered that Mr. Huang has no authority to charge Huawei's perjury while Mr. Huang provided solid evidence that Huawei's witness have made perjury with public evidence support..
a34	2:15-cv-1413 Dkt.155	With his own fraudulent statement Judge Gilstrap

		denied Mr. Huang's appeal.
a35-23	2:15-cv-1413 Dkt.155 Dkt.146	With his complete own fraudulent statement Judge Gilstrap grant Huawei's MSJ and dismissed Mr. Huang's complaint.
a37-a39	2:15-cv-1413 Dkt.134	Magistrate Roy Payne made fraudulent statement that Mr. Huang did not produce the reverse engineering data during the Discovery. In fact Mr. Huang produced those reverse engineering Data of the chips used in Huawei's Routers which proved the infringement to US patent RE45259 in the original complaint. The experts should be allowed to access the confidential materials based on the Protective Order. Magistrate Judge Payne is unjust and made Fraudulent statement in this Order, Report and recommendation.
a40-a42	2:15-cv-1413 Dkt,93	Magistrate Payne denied Plaintiff's request to add Huawei's 74 products sold in USA, which proved

		that Huawei's declaration that no products containing TCAM are sold in the USA is a perjury since those 74 products have been sold in USA and those 74 products contains TCAM. Magistrate stated: By the agreed terms of (Protective) Order (Dkt. No. 33), these materials(RESTRICTED-ATTORNEYS' EYES ONLY" or "RESTRICTED CONFIDENTIAL SOURCE CODE " may be disclosed only to ...certain outside consultants or experts, See (Dkt. No. 33 at ¶¶ 5, 9, 10). But in Dkt.134 the Magistrate Payne did not allow the outside independent experts retained by Plaintiff Mr. Huang to access the "confidential source code". Magistrate Judge is unjust.
a43-a79	US patent RE45259	"Hit ahead hierarchical scalable priority encoding logic and circuits". Describe

		a high speed priority encoding method for TCAM, reverse engineering data proved that Broadcom TCAM chips used in Huawei's Router and Switches infringed this patent.
a80-a106	3-1(b) Initial Disclosure and infringement contention	Claim chart of US patent RE45259 against Broadcom TCAM chips used in Huawei's Router and Switches based on the reverse engineering data extracted from Broadcom TCAM chips. Claim chart of US patent 6744653 and 6999331 against the eSilicon TCAM data sheet, the TCAM used in Huawei's Router and Switches.
a107-a111	3-2(a) Initial Disclosure and infringement contention	Article of CMOS Micro Device Inc.'s TCAM. Expert's request to design TCAM from Cisco Systems. Email and TCAM design Document disclosed
a112-a115	Declaration related infringement	Email: Broadcom allow Plaintiff's independent expert to access its Confidence Source code

		Huawei Attorney's Bill payment shows Huawei asked eSilicon to generate TCAM Schematics and and calculated Royalty of Products
a116-a125	X-1 of Dkt.184	Huang produced several emails which proved that Huawei's Penyan Li's declaration is perjured.
A126-a129	X-2 of Dkt.184	Haung's Declaration X-2 of Dkt.184 that Huawei's Counsel Torkelson's Declaration is perjured. The document proved that Huang did pre-litigation investigation
a130	Magistrate Judge's Order 99	Magistrate Judge's Order 99 to allow Mr. Huang re-file 2nd motion to compel
a131-a136	Huang's 1st motion to compel	Compel the confidential and non-confidential information
a137-a142	Huang's 2nd motion to compel	Compel non-confidential information, such the products model number of the Router and Switches sold into USA.
a143-a148	Huang's 3rd motion to compel	Refiled 2nd motion as the Magistrate instructed in Order 99.
a149-	Huang's 4th	Huang retained

a151	motion to compel	independent Expert, to compel to disclose the confidential information to the outside experts based on the protective order.
a152-a153	Huang's 5th motion to compel	After Broadcom agree to disclose its "confidential source code" Huang's outside experts based on the protective order, Huang compel Huawei to disclose its "confidential material" to Huang's outside experts
a154-a164	" Reverse engineering drawing description"	The reverse engineering data extracted from several Broadcom TCAM chips used in Huawei's products, which proved infringement to US patent RE45259, Huang produced this document in its original complaint and sent it to Huawei in infringement contention, which was authenticated in November and December, 2016.
a165-a166	Exhibit M of Dkt.109 Outside expert declaration	Declared that Huang used Wuxi Hengyu Micro Electronics Ltd to have four TCAM chips revered by the third party
a167-	Huang's	In response to Huawei's

a184	expert report In Exhibit T of Dkt.109	MSJ of non-infringement Mr. Huang produced this report to prove that TCAM chips used in Huawei's products sold into USA infringed US patent RE45259 with the reverse engineering data extracted from the TCAM chips of Huawei's produced.

NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

XIAOHUA HUANG,
Plaintiff-Appellant

v.

HUAWEI TECHNOLOGIES CO., LTD.,
Defendant-Appellee

2017-1505, 2017-1767, 2017-1893, 2017-2092, 2017-2229

Appeals from the United States District Court for the Eastern District of Texas in No. 2:15-cv-01413-JRG-RSP, Judge J. Rodney Gilstrap.

Decided: June 8, 2018

XIAOHUA HUANG, Campbell, CA, pro se.

E. LEON CARTER, Carter Scholer Arnett & Mockler PLLC, Dallas, TX, for defendant-appellee. Also represented by SCOTT W. BREEDLOVE, JOHN STEVEN TORKELSON; GREGORY A. CASTANIAS, DANIEL KAZHDAN, Jones Day, Washington, DC.

Before REYNA, LINN, and CHEN, *Circuit Judges.*

PER CURIAM.

Appellant Xiaohua Huang, proceeding *pro se*, appeals several rulings from the United States District Court for the Eastern District of Texas, including the district court's grant of summary judgment of noninfringement and grant of attorneys' fees and expert costs. Mr. Huang has filed five separate appeals in this court, all pertaining to the district court action.[1] The five appeals have been consolidated and are addressed below. Because the district court did not err or abuse its discretion in granting summary judgment, granting attorneys' fees and costs, and in other rulings challenged by Mr. Huang, we *affirm*.

BACKGROUND

I. Initiation of the Lawsuit

Mr. Huang is the owner of U.S. Patent Nos. 6,744,653, 6,999,331, and RE45259 (collectively, the "Huang patents"). The Huang patents relate to ternary content addressable memory ("TCAM") technology in the field of semiconductor chips. TCAM is a type of computer memory used in search applications that can achieve high-speed routing and switching in networking devices.

[1] Mr. Huang filed a first appeal (2017-1505) after summary judgment of noninfringement. Mr. Huang filed a second appeal (2017-1767), challenging the district court's decision to award unquantified fees and several of the underlying orders. Mr. Huang's third appeal (2017-1893) concerns the district court's quantified fee award and several of the same underlying orders. Mr. Huang's fourth (2017-2092) and fifth (2017-2229) appeals are largely duplicative of the first three appeals.

On August 14, 2015, Mr. Huang filed the original complaint on behalf of himself and his company, CMOS Micro Device Inc. ("CMOS"), which develops TCAM technology. The complaint alleged that Huawei Technologies Inc. ("Huawei") infringed the Huang patents by making and selling "switches." SAppx29. Huawei filed a motion to compel CMOS to obtain counsel on the grounds that a corporation may not proceed *pro se*. In response, Mr. Huang amended his complaint to drop CMOS from the lawsuit.

Early in the case, the parties jointly moved for entry of an agreed protective order. The protective order provided that certain types of confidential information designated as "attorneys' eyes only" would be subject to disclosure only to counsel, including outside counsel and "in-house counsel with no competitive decision-making authority." SAppx59–62. The protective order also limited disclosure of information designated as confidential source code to "outside counsel and up to three (3) outside consultants or experts." *Id.*

On December 1, 2015, Mr. Huang served his infringement contentions pursuant to local patent rules, accusing seven Huawei switches and routers of infringement on the basis that they contained certain third-party chips that allegedly infringed the Huang patents. On January 20, 2016, Mr. Huang filed a third amended complaint following additional early motion practice. The amended complaint also included contentions that Huawei products infringed on the basis of products from third-party suppliers.

II. Discovery and Rule 11 Motions

After serving invalidity contentions, Huawei served a Rule 11 safe-harbor letter[2] on Mr. Huang on March 22, 2016. The letter asserted that Mr. Huang's claims were baseless and that a pre-suit investigation would have revealed that some of the accused products were never sold in the United States. Huawei also made various documents available, including documents from third-party suppliers designated as attorneys' eyes only pursuant to the protective order. Huawei contended that the documents showed that the accused products did not infringe the Huang patents and requested that Mr. Huang hire an attorney who could have access to the designated information to evaluate Huawei's contentions. Mr. Huang refused Huawei's request, and on May 23, 2016, Huawei filed a Rule 11 motion.

A few days later, Mr. Huang filed motions to amend the complaint and his infringement contentions in order to add seventy-four additional Huawei products. All of the additional products were listed on Huawei's public website on December 1, 2015, when Mr. Huang initially served his infringement contentions.

On July 8, 2017, Mr. Huang filed the first of several motions to compel access to information designated as attorneys' eyes only and confidential source code. Mr. Huang took no depositions and served no interrogatories during discovery.

[2] Pursuant to Federal Rule of Civil Procedure 11, Huawei's letter attached its intended motion for Rule 11 sanctions and gave Mr. Huang notice of Huawei's intent to move at least twenty-one days in advance of filing.

III. The July 2016 Hearing and Stay of the Case

In lieu of a planned *Markman* hearing, the magistrate judge set a hearing for July 27, 2016, on several pending motions, including Mr. Huang's first motion to compel, his motions to amend the infringement contentions and the third amended complaint, and Huawei's Rule 11 motion. The court denied Mr. Huang's motion to compel the designated confidential information on the basis that Mr. Huang was prohibited from personally gaining access to it under the terms of the protective order. The court denied the motion without prejudice, instructing Mr. Huang that he could re-file it after retaining counsel who could seek access to the designated information. The court also denied Mr. Huang's motions to amend the infringement contentions and the complaint for lack of good cause.

At the hearing, the court explained the difficulties Mr. Huang would face in satisfying the burden of proof in his case without access to designated confidential information and encouraged him to obtain counsel. Mr. Huang represented that he had tried to retain counsel and would continue to do so. Mr. Huang also asserted that he could prove his case without personally gaining access to the confidential information by hiring a third party to reverse engineer the accused chips, a process that he acknowledged would cost hundreds of thousands of dollars. SAppx1066–75. Despite Mr. Huang's assertion that he did not need access to confidential information, the court stayed the case for sixty days to allow Mr. Huang time to seek assistance of counsel and deferred ruling on Huawei's Rule 11 motion.

About two weeks after the July hearing, during the stay, Mr. Huang filed the first of several more motions to compel the same type of designated confidential information he previously sought. Mr. Huang also filed additional motions to amend the complaint and to amend

infringement contentions—the same motions denied by the court at the July hearing. The court denied all of Mr. Huang's renewed motions without prejudice in light of the stay.

At this point, Mr. Huang filed a separate patent infringement suit, alleging infringement of the Huang patents by the same seventy-four Huawei products he attempted to add to his first case. Mr. Huang then filed a motion to consolidate the two cases.

IV. Summary Judgment

On September 29, 2016, Huawei moved for summary judgment of noninfringement as to all three Huang patents. Huawei asserted that summary judgment was warranted for lack of infringement evidence and because its own evidence established noninfringement. In response to Huawei's motion, Mr. Huang submitted exhibits of purported reverse-engineering images and drawings, including hand-drawn figures, that he had not produced in discovery. His exhibits also included declarations from previously undisclosed witnesses. Huawei moved to strike several of Mr. Huang's exhibits on various grounds, including failure to produce or disclose them during discovery.

On November 22, 2016, the magistrate judge issued a combined order and report and recommendation on summary judgment and several other motions. The magistrate judge recommended granting summary judgment, finding that Mr. Huang had not raised a triable issue of fact, and noted that Mr. Huang chose not to hire an attorney that would have been able to access protective order information on the Huawei products. The magistrate judge granted Huawei's motion to strike on the basis that Mr. Huang failed to produce or disclose during discovery the exhibits that he submitted with his response.

In the same order, the court denied third and fourth motions to compel filed by Mr. Huang. Mr. Huang had recently retained experts and asserted that they should have access to the designated information he sought in his prior motions to compel. The court reasoned that providing the experts with the designated information would be of no use to Mr. Huang, referring to the reasons explained at the July hearing. Four days after the magistrate judge's order, Mr. Huang filed a fifth motion to compel similar information, which the court denied.

On December 7, 2016, the district judge adopted the magistrate judge's November 22 order and report and recommendation, overruling objections filed by Mr. Huang. The next day, Mr. Huang filed a second challenge to the magistrate judge's ruling, which the district judge again denied while confirming that Mr. Huang's claims were dismissed.

V. Attorneys' Fees and Costs

On January 31, 2017, Huawei moved for fees and expert costs under 35 U.S.C. § 285 and the court's inherent power. In support, Huawei submitted declarations stating that Mr. Huang repeatedly contacted Huawei's in-house counsel about settlement, despite Huawei's outside counsel's repeated instructions to Mr. Huang not to do so. The declarations asserted that Mr. Huang had stated that he sued Huawei because he believed the case would quickly settle for $1.5 million, that he did not want to share revenue with a lawyer, and that he would continue filing motions to force Huawei to incur legal fees. Huawei's fees motion also pointed to Mr. Huang's allegations that Huawei, its attorneys, and its third-party declarants had purportedly made perjured statements in

Huawei's summary judgment declarations.[3] Mr. Huang responded by making additional unsupported perjury allegations.

After a hearing, the magistrate judge granted Huawei's fees motion, finding that the case was exceptional under § 285 and worthy of granting expert costs under the court's inherent power. The court found that Mr. Huang "offered no satisfactory explanation for his litigation conduct," which the court determined was in bad faith and an abuse of the judicial process. *Xiaohua Huang v. Huawei Techs. Co.*, No. 2:15-CV-1413, 2017 WL 1133201, at *3–4 (E.D. Tex. Mar. 27, 2017). The court found that Mr. Huang's motion practice corroborated the statements about Mr. Huang's litigation motives in Huawei's declarations in support of its fees motion. The court noted it had given Mr. Huang ample opportunity to retain assistance of counsel and that Mr. Huang's *pro se* status did not relieve him from the consequences of frivolous litigation conduct. On these grounds, the court awarded attorneys' fees and costs to Huawei.

In quantifying the fees and costs awarded, the magistrate judge limited the amount to those incurred from the date of Huawei's Rule 11 safe-harbor letter to the grant of summary judgment on December 7, 2016. The court awarded a total of $604,036.71.[4]

[3] Mr. Huang's unsupported perjury allegations began after dismissal of his claims and Huawei's rejection of a five-figure settlement offer, and included filing a motion requesting that Huawei's declarants be criminally prosecuted.

[4] Mr. Huang objected to the magistrate judge's decision by making additional accusations of perjury and characterizing the magistrate judge's ruling as "deliber-

This court has jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

I. Summary Judgment

Huawei moved for summary judgment of noninfringement on the basis that Mr. Huang presented no evidence showing the structure or operation of the accused Huawei products to support his allegations of infringement. Huawei also contended that it presented affirmative evidence of noninfringement through its own documents and declarations from Huawei employees and a technical expert. The district court granted Huawei's motion for summary judgment and dismissed Mr. Huang's claims. Mr. Huang argues that the district court erred because he presented evidence of infringement through several exhibits attached to his opposition to Huawei's summary judgment motion. We agree with the district court.

We review a grant of summary judgment under the law of the regional circuit, in this case, the Fifth Circuit. *See Travel Sentry, Inc. v. Tropp*, 877 F.3d 1370, 1376 (Fed. Cir. 2017). The Fifth Circuit reviews a grant of summary judgment *de novo*. *Triple Tee Golf, Inc. v. Nike, Inc.*, 485 F.3d 253, 261 (5th Cir. 2007). On appeal from a grant of summary judgment of noninfringement, we determine whether no reasonable jury could find infringement after resolving reasonable factual inferences

ately an abuse of discretion." Appx6. In overruling the objections, the district judge warned that he "may issue further sanctions for [Mr. Huang's] flagrant abuse of the judicial process" and unsupported allegations against Huawei and the magistrate judge. SAppx24.

in favor of the patentee. *IMS Tech., Inc. v. Haas Automation, Inc.*, 206 F.3d 1422, 1429 (Fed. Cir. 2000).

Mr. Huang failed to produce any evidence showing the structure or operation of Huawei's accused products or how the limitations of the claims of the Huang patents were met by such accused products. Without Mr. Huang having access to information on the accused Huawei products, he could not show how they purportedly infringed the Huang patents. Moreover, Huawei presented unrebutted evidence of noninfringement. Even considering the evidence in the light most favorable to Mr. Huang, it does not establish a genuine dispute of material fact such that a reasonable jury could find infringement. *See* Appx13, 20–21. Accordingly, we affirm the district court's grant of summary judgment of noninfringement.

Mr. Huang also challenges the district court's decision to grant Huawei's motion to strike several exhibits attached to his response in opposition to Huawei's motion for summary judgment, including purported reverse-engineering records. Mr. Huang contends that because he filed his opposition with the attached exhibits on the last day of discovery, the district court erred in granting Huawei's motion to strike. Huawei responds that the district court properly struck Mr. Huang's exhibits because they consisted of declarations from previously undisclosed witnesses and were based on purported reverse-engineering records that were never produced, in violation of Mr. Huang's discovery obligations.

"A district court's rulings regarding evidence it will consider in deciding a motion for summary judgment are reviewed for abuse of discretion." *Tex. E. Transmission Corp. v. Amerada Hess Corp.*, 145 F.3d 737, 741 (5th Cir. 1998); *see also United States v. Phillips*, 219 F.3d 404, 409 (5th Cir. 2000) ("We review the district court's admission of evidence for an abuse of discretion."). We agree that

Mr. Huang's failure to meet his discovery obligations by not producing information[5] central to his case provides a sufficient basis for striking Mr. Huang's exhibits. Thus, the district court did not abuse its discretion in granting Huawei's motion to strike.

II. Attorneys' Fees and Costs

The district court found that this was an exceptional case and granted attorneys' fees to Huawei under § 285. We agree. An "exceptional" case "stands out from others with respect to the substantive strength of a party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated." *Highmark Inc. v. Allcare Health Mgmt. Sys., Inc.*, 134 S. Ct. 1744, 1748 (2014). "[T]he exceptional-case determination is to be reviewed only for abuse of discretion." *Id.* We give deference to the district court as it "is better positioned to decide whether

[5] The record indicates that Mr. Huang withheld this information from Huawei, despite its repeated requests to produce it. While Mr. Huang claims that he provided the information at issue with his summary judgment opposition, on the last day of discovery, the record shows that he relied on declarations from witnesses who had never been previously disclosed. *See e.g.*, SAppx755, 883–85. Moreover, the record indicates that he never produced the raw data underlying several exhibits to his summary judgment opposition. *See* SAppx884. Mr. Huang's amended initial and additional disclosures, filed after the close of discovery, indicated that he had information "ready to be released to Defendant upon [*sic*] the Defendant provides the information which Plaintiff required [*sic*]" and listed the same types of confidential information subject to his motions to compel that he requested from Huawei. SAppx 776.

a case is exceptional . . . because it lives with the case over a prolonged period of time." *Id.* (internal quotation marks omitted).

The record reflects that Mr. Huang presented no evidence to support his litigation position and that Mr. Huang litigated the case in a frivolous manner. Mr. Huang submitted no evidence of pre-suit investigation and no evidence of infringement. Huawei submitted evidence that Mr. Huang's intent from the outset of the litigation was to force Huawei to incur legal fees in hopes that it would quickly settle. Mr. Huang did not attempt to refute this evidence except with baseless allegations of perjury against Huawei's declarants and counsel. Further, Mr. Huang's accelerating motion practice as the case progressed, including filing repetitive and nearly identical motions, was unreasonable litigation conduct and consistent with the declarations submitted by Huawei in support of its fees motion.

As the district court observed, *pro se* plaintiffs have been held liable for attorneys' fees simply because their patent infringement actions had no evidentiary basis, even without similar litigation misconduct as in this case. *See, e.g.*, *Yufa v. TSI Inc.*, No. 09-CV-1315, 2014 WL 4071902, at *4 (N.D. Cal. Aug. 14, 2014); *Comora v. Thermo Cardiosystems, Inc.*, No. 91-CV-5620, 1992 WL 315226, at *4 (C.D. Cal. May 5, 1992). Accordingly, we affirm the district court's award of attorneys' fees under § 285.

The district court also granted expert costs under its inherent power. Several times, the district court found that Mr. Huang's litigation behavior constituted bad faith and an abuse of the judicial process. Appx6, 14. We review the district court's grant of sanctions under its inherent power *de novo*. *F.D.I.C. v. Maxxam, Inc.*, 523 F.3d 566, 590 (5th Cir. 2008). Upon review of the record,

we agree with the findings of the district court. Accordingly, the district court did not err in invoking its inherent authority to award expert costs.

CONCLUSION

Mr. Huang challenges several other rulings made by the district court. We have reviewed Mr. Huang's remaining arguments and consider them to be without merit. For the foregoing reasons, the court *affirms* the district court's grant of summary judgment of noninfringement, grant of attorneys' fees and expert costs, and the other district court rulings challenged by Mr. Huang.

AFFIRMED

COSTS

Costs to Appellee.

NOTE: This order is nonprecedential.

United States Court of Appeals for the Federal Circuit

XIAOHUA HUANG,
Plaintiff-Appellant

v.

HUAWEI TECHNOLOGIES CO., LTD.,
Defendant-Appellee

2017-1505, 2017-1767, 2017-1893, 2017-2092, 2017-2229

Appeals from the United States District Court for the Eastern District of Texas in No. 2:15-cv-01413-JRG-RSP, Judge J. Rodney Gilstrap.

ON PETITION FOR REHEARING EN BANC

Before PROST, *Chief Judge*, NEWMAN, LOURIE, LINN*, DYK, MOORE, O'MALLEY, REYNA, WALLACH, TARANTO, CHEN, HUGHES, and STOLL, *Circuit Judges*.

PER CURIAM.

ORDER

Appellant Xiaohua Huang filed a petition for rehearing en banc. The petition was first referred to the panel that heard the appeals, and thereafter the petition for

rehearing en banc was referred to the circuit judges who are in regular active service.

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for panel rehearing is denied.

The petition for rehearing en banc is denied.

The mandate of the court will issue on August 15, 2018.

FOR THE COURT

August 8, 2018
Date

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

* Circuit Judge Linn participated only in the decision on the petition for panel rehearing.

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG,	)
Plaintiffs,	)
v.	)
HUAWEI TECHNOLOGIES	)
CO., LTD.,	) Case No. 2:15-
Defendant.	) 1413- JRG-RSP

FINAL JUDGMENT

Before the Court is Defendant Huawei Technologies Co., Ltd.'s Rule 58 Request for Entry of Judgment (Dkt. 221). Because the record has been complicated by the pro se filings of the Plaintiff, the request is granted, and IT IS ORDERED, ADJUDGED AND DECREED that the Plaintiff recover nothing, that Plaintiff's claims be dismissed with prejudice, and that all counterclaims be dismissed without prejudice.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED that Defendant Huawei Technologies Co., Ltd. shall recover from Plaintiff Xiaohua Huang the sum of $534,999 in attorneys' fees and costs and $69,037.50 in additional expert fees, for a total of $604,036.71.

So ORDERED and SIGNED this 25th day of May , 2017

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, pro se	)	
Plaintiff,	)	
v.	)	
HUAWEI TECHNOLOGIES CO.,LTD.,)	)	Case No. 2:15-CV-01413-JRG-RSP
Defendant.	)	

ORDER

On March 27, 2017, the Court entered an Order indicating that attorneys' fees and costs would be taxed against Mr. Huang under 35 U.S.C. § 285 and pursuant to the Court's inherent power. See ECF No. 204. Huawei thereafter filed documents accounting for their fees and costs and demonstrating the reasonableness of their hourly rates and number of hours expended. See ECF Nos. 206, 208; Lumen View Tech. LLC v. Findthebest.com, Inc., 811 F.3d 479, 483 (Fed. Cir. 2016); Bywaters v. United States, 670 F.3d 1221, 1226 (Fed. Cir. 2012). Huawei seeks a total of $901,368.15 in attorneys' fees and costs. See ECF No. 206.

As the Court previously explained, see ECF No. 204, Huawei sent Mr. Huang a Rule 11 safe harbor letter on March 22, 2016. Once Mr. Huang received that letter, he was on notice that his litigation strategy could result in significant liability. Although notice of liability is not required for an attorneys' fee award under § 285 or under the Court's inherent powers, the Court finds that because Mr. Huang is a pro se litigant (albeit a sophisticated one), March 22, 2016 is a reasonable

starting point for limiting the fees and costs. Accordingly, Huawei's fees and costs incurred prior to April 1, 2016 will not be awarded.

The Court similarly finds that December 7, 2016 is a reasonable endpoint. While this case required significant work leading up to the hearing on Huawei's attorneys' fees and costs motion, which occurred in March of this year, the Court recommended that summary judgment of non infringement be granted in late 2016, and the District Judge adopted that recommendation and dismissed Mr. Huang's complaint on December 7, 2016. See ECF No. 146. Much of Huawei's subsequent work involved trial preparation and the preparation of an additional summary judgment motion related to invalidity. Although this work was neither unnecessary nor unreasonable in light of Huawei's counterclaims of invalidity and Mr. Huang's second patent infringement action, see ECF No. 204, it should have been clear by December 7, 2016 that the case would not likely proceed to trial.

Subject to these limitations, Huawei's submissions otherwise adequately demonstrate the reasonableness of the number of hours spent on this case and the hourly rates. See ECF Nos. 206, 208; Lumen View Tech., 811 F.3d at 483. Accordingly, for the period beginning April 1, 2016 and ending December 7, 2016, the Court awards the following costs under § 285 and under the Court's inherent power:

Date	Amount	Record Citation
Attorneys' Fees and Costs		
April 2016	$62,400.00	206-9
May 2016	$37,567.30	206-10
June 2016	$71,171.60	206-11
July 2016	$63,325.90	206-12
August 2016	$21,385.00	206-13
September 2016	$37,865.00	206-14
October 2016	$142,068.31	206-15
November 2016	$87,150.10	206-16
December 1-7, 2017	$12,066.00	206-17
SUBTOTAL	**$534,999.21**	
Expert Fees		
July 2016	$12,180.00	206-26
August 2016	$11,025.00	206-27
September 2016	$18,480.00	206-28
October 2016	$22.890.00	206-29
November 2016	$3,412.50	206-30
December 5-6, 2016	$1050	206-31
SUBTOTAL	**$69,037.50**	
TOTAL	**$604,036.71**	

CONCLUSION

Huawei is awarded $534,999.21 in attorneys' fees and costs and $69,037.50 in additional expert fees, for a total of $604,036.71.

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

XIAOHUA HUANG, pro se	)	
Plaintiff,	)	
v.	)	
HUAWEI TECHNOLOGIES CO.,LTD.,)	)	Case No. 2:15-CV-01413-JRG-RSP
Defendant.	)	

ORDER

Before the Court is Plaintiff Xiaohua Huang's objection to and appeal of the Magistrate Judge's decision to award Defendant Huawei attorneys' fees and costs under 35 U.S.C. § 285 and pursuant to the Court's inherent power. Dkt. No. 211. The Court will only set aside or modify the Magistrate Judge's Order if the Court finds that at least a portion of the order is "clearly erroneous or contrary to law." Fed. R. Civ. Proc. 72(a). Having reviewed the Order, the Court finds that no such error exists.

In addition, the Court finds it remarkable that Mr. Huang continues to accuse Defendant Huawei of having submitted "perjured testimony" and "fraud[ulent] statement[s]" in light of the Magistrate Judge's opinion. Dkt. No. 211 at 2. Indeed, unsupported perjury and fraud allegations are the basis for Mr. Huang's objection. Mr. Huang makes a more troubling accusation—namely that the Magistrate Judge's grant of the motion for attorneys' fees is "deliberately an abuse of

discretion." Id. at 2 (emphasis added). Mr. Huang is reminded that the Court may issue further sanctions for his flagrant abuse of the judicial process, unsupported allegations, and now his unsupported suggestion that the Magistrate Judge intentionally made an incorrect decision.

Finally, many of the factual assertions supporting Mr. Huang's objection have never been presented before. Mr. Huang attempts to rebut the declarations submitted by Huawei regarding Mr. Huang's inappropriate communication with Huawei's in house counsel. Yet Mr. Huang was given an opportunity to respond to Huawei's attorneys' fees motion, called in for a hearing on the motion, and failed to raise these facts. Although Mr. Huang is a pro se litigant, he was warned of the consequences of proceeding pro se in a complicated patent infringement action. Mr. Huang did not make any attempt to depose any of Huawei's declarants, and thus his factual assertions, even if credited, would not change the Magistrate Judge's resolution of Huawei's attorneys' fees motion. Accordingly, Mr. Huang's objection is OVERRULED.

IT IS FURTHER ORDERED that if Mr. Huang files another paper on record in this Court making unsupported allegations of perjury or fraud, directed to any party or the Court, he will be required to appear for a show cause hearing to determine whether additional sanctions are appropriate.

So ORDERED and SIGNED this 17th day of April, 2017

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

Plaintiff,	)	
v.	)	
HUAWEI TECHNOLOGIES CO.,LTD.,)	)	Case No. 2:15-CV-01413-JRG-RSP
Defendant.	)	

MEMORANDUM OPINION AND ORDER

Mr. Xiaohua Huang, acting pro se, sued Huawei Technologies Co., LTD. (Huawei) for infringement of U.S. Patent Nos. 6,744,653, 6,999,331, and RE45,259, which are generally related to circuits for content addressable memory (CAM). After the Court granted summary judgment of noninfringement and entered final judgment, Huawei moved for attorneys' fees under 35 U.S.C. § 285 and under the Court's inherent power. See Huawei Br., ECF No. 179. For the following reasons, Huawei's motion is GRANTED.

BACKGROUND

Mr. Huang owns CMOS Micro Device, Inc. (CMOS), a company headquartered in Silicon Valley. Compl. ¶ 2, ECF No. 1. According to the complaint, CMOS develops and markets CAM technology. Id. The patents-in-suit all relate to CAM circuits and name Mr. Huang as the sole inventor. See ECF No. 1-1. The Complaint alleges that Huawei sells products known as "switches" that include chips covered by the patents-in-suit.

Compl. ¶ 3, ECF No. 1.

Huawei initially responded to the lawsuit by emailing Mr. Huang to request an extension of time to answer the complaint. Li Pengyan Decl. ¶ 3, Jan. 26, 2017, ECF No. 179-1. A few days later, Mr. Huang called Huawei's offices in China and indicated that resolution of the lawsuit was not his goal. Id. ¶ 4. Rather, Mr. Huang asked for an offer from Huawei to purchase the patents-in-suit. Id. Huawei told Mr. Huang that it was not interested. Id. ¶ 5.

Early motion practice followed. Mr. Huang's original complaint was filed both on behalf of Mr. Huang personally and CMOS, Mr. Huang's company. See Compl., ECF No. 1. But because Mr. Huang is not licensed to practice law, Huawei filed a motion to compel CMOS to obtain legal counsel given the long-standing rule precluding a corporation from proceeding pro se in federal court. See Rowland v. Calif. Men's Colony, 506 U.S. 194, 201-02 (1993); Huawei Mot. 2-3, ECF No. 8. Mr. Huang thereafter filed an amended complaint on behalf of only himself. See Am. Compl., ECF No. 12. Huawei filed additional motions to dismiss, all of which were ultimately rendered moot by Mr. Huang's third amended complaint. See Order dated Sept. 21, 2016, ECF No. 103.

About six months into discovery, Huawei sent Mr. Huang a Rule 11 safe harbor letter explaining that Mr. Huang's infringement allegations were baseless. See Huawei Rule 11 Br. 2, ECF No. 52. Discovery had revealed that Huawei has never imported into the United States or sold a router or switch containing the particular type of chip that formed the basis of Mr. Huang's claim. Id. This

Rule 11 motion (in addition to numerous motions filed by Mr. Huang to compel discovery) prompted the Court to set a hearing on July 27, 2016.

It became clear during the July hearing that Mr. Huang would not likely establish a basis for infringement because Mr. Huang could not access necessary technical details concerning Huawei's products. See Hr'g Tr. 3-13, Jul. 27, 2016, ECF No. 183. Huawei had properly designated this technical information "confidential" and "attorneys' eyes only" under the (agreed) protective order. See id. The protective order precludes Mr. Huang from personally viewing such information because Mr. Huang designs and markets his own CAM technology to Huawei's competitors in China. See, e.g., Huawei Resp. Br. 1-2, ECF No. 117. Mr. Huang would also likely be prevented from viewing related third-party product information that would be necessary to support Mr. Huang's infringement contentions. See Hr'g Tr. 3-13, ECF No. 183.

The Court explained to Mr. Huang that his pro se status would likely impair if not prevent a successful opposition to summary judgment. Id. Mr. Huang expressed a contrary view. When the Court asked Mr. Huang if he had "any ideas to offer about how to get around the problem of sharing confidential information with your side of the case without an outside lawyer," Mr. Huang responded, "In fact, I do not need to see any so-called confidential information from Huawei." Id. 13:19-14:9. According to Mr. Huang, a contract between Huawei and a supply company and various Huawei chip model numbers would be enough. Id. 14:1-9. The Court sought clarification: "And you're saying that you believe that you can prove your case with

just the model number of the chip and a copy of the contract between Huawei and [the supply company]?" Id. 16:7-10. "Yes, your Honor, that's enough." Id. 16:11. Mr. Huang intended to reverse engineer the accused chips an endeavor that Mr. Huang acknowledged would be very costly. Id. 20:1-22.

The Court took Mr. Huang's representations that he did not require confidential information with caution and stayed the case for 60 days to allow Mr. Huang time to find legal counsel, while deferring Huawei's Rule 11 motion. Id. 26:9-13. Mr. Huang never attempted to hire counsel as far as the record reflects. Rather, Mr. Huang proceeded undeterred. Only about two weeks after the July hearing—while the case was stayed—Mr. Huang began filing numerous motions to compel Huawei to produce the very type of information the Court had determined to be properly designated as "attorneys' eyes only." See ECF Nos. 94, 95, 96. Mr. Huang's discovery motions were denied without prejudice in light of the stay, see ECF No. 99, prompting Mr. Huang to appeal that denial to the district judge, see ECF No. 100. The appeal was unsuccessful. See ECF No. 101. Still undeterred, Mr. Huang filed another civil action based on the same asserted patents along with a motion to consolidate the newly-filed case with the stayed case. See ECF No. 104; Compl. in Case No. 2:16-cv-947, Aug. 26, 2016, ECF No. 1.

At the conclusion of the 60-day stay, Mr. Huang had not obtained counsel, and Huawei moved for summary judgment. ECF No. 105. The Court recommended granting summary judgment upon finding no evidence to support Mr. Huang's

infringement claims. ECF No. 134. After considering Mr. Huang's objections to that recommendation, the District Judge granted summary judgment and dismissed Mr. Huang's case. ECF No. 146. Mr. Huang continued to object to the Court's dismissal Order, ECF No. 148, 163, and eventually filed a notice of appeal to the Federal Circuit on January 19, 2017, ECF No. 173.

A declaration submitted by Huawei's in house counsel provides a possible explanation for Mr. Huang's persistent litigation conduct. Li Pengyan Decl., ECF No. 179-1. Despite having been asked to only communicate with Huawei through their outside counsel, Mr. Huang has been in constant contact with Huawei's in house counsel throughout the case. Id. ¶ 7. Mr. Huang told Huawei's counsel that he sued Huawei because one of his (lawyer) friends told him that if he were to represent Mr. Huang in a lawsuit against Hauwei, the case would quickly settle for $1.5 million. Id. Mr. Huang said that he nevertheless decided not to hire an attorney because he did not want to share revenue with a lawyer. Id. Even after the Court granted Huawei's motion for summary judgment and dismissed the case, Mr. Huang told Huawei's in house counsel that he would continue filing motions—forcing Huawei to reply and incur further legal fees. Id.

Among the barrage of documents filed by Mr. Huang are motions and other papers suggesting that Huawei's corporate representatives and Huawei's counsel have not been truthful and that Huawei has engaged in improper behavior. See, e.g., Huang Mot. for Perjury Charges, Jan. 18, 2017, ECF No. 170. As early as the July hearing, Mr.

Huang began characterizing Huawei's declarations as "not truthful." Hr'g Tr. 24:21-23, ECF No. 183. Indeed, Mr. Huang's response to Huawei's Rule 11 motion was that "it is completely baseless; and I'm going to file a motion for Rule 11 to sanction Huawei's improper [conduct]." Id. 23:14-16. Mr. Huang's allegations of untruthfulness culminated with a "motion for perjury charges" filed on January 18, 2017. ECF No. 170.

Huawei thereafter filed their motion for attorneys' fees. See Huawei Br., ECF No. 179. In part because Mr. Huang continues to represent himself, the Court scheduled a hearing to determine whether Mr. Huang could explain his conduct, why he had chosen not to hire an attorney, and why the Court should not award fees and costs. Mr. Huang appeared at the hearing but offered no satisfactory explanation for his litigation conduct. In fact, Mr. Huang continued to maintain that Huawei's witnesses and lawyers were being untruthful, and that they were committing perjury. In response to these accusations, one of Huawei's attorneys explained that he had personally considered filing a libel or slander suit against Mr. Huang given Mr. Huang's repeated perjury accusations. It is against this abbreviated review of the case that the Court decides Huawei's attorneys' fees motion.

DISCUSSION

Section 285 provides that "[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party." 35 U.S.C. § 285. The statute imposes "one and only one constraint on district courts' discretion to award attorney's fees in patent litigation: [t]he power is reserved for

'exceptional' cases." Octane Fitness, LLC v. ICON Health & Fitness, Inc., 134 S. Ct. 1749, 1755-56 (2014). An "exceptional" case is "one that stands out from others with respect to the substantive strength of a party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated." Id. at 1756. "District courts may determine whether a case is 'exceptional' in the case-by-case exercise of their discretion, considering the totality of the circumstances." Id.

While expert fees are not awardable under § 285, a court is entitled to use its inherent powers to award such fees. Takeda Chem. Indus., Ltd. v. Mylan Labs., Inc., 549 F.3d 1381, 1391 (Fed. Cir. 2008). A prerequisite is a "finding of fraud or abuse of the judicial process." Amsted Indus. Inc. v. Buckeye Steel Castings Co., 23 F.3d 374, 378 (Fed. Cir. 1994). Such a finding may result from a litigant's "bad faith and vexatious litigation conduct." Takeda, 549 F.3d at 1391.

The Court agrees with Huawei that this case is exceptional under § 285 and reveals bad faith and an abuse of the judicial process. Section 285 was designed to have a remedial effect, to deter unwarranted litigation. Mathis v. Spears, 857 F.2d 749, 754 (Fed. Cir. 1988). This case was unwarranted, to say the least. Mr. Huang submitted no evidence of any meaningful pre-suit investigation, and for the reasons already explained, Mr. Huang was unable to obtain discovery into Huawei's accused products. Huawei Br., ECF No. 179. To be clear, however, Mr. Huang's discovery obstacle and unwillingness to obtain counsel to overcome that obstacle is not the

primary basis for the Court's finding of exceptionality and bad faith.

Despite having no obligation to do so, Huawei appears to have proven to itself and made every effort to demonstrate to Mr. Huang that Huawei affirmatively does not infringe the asserted patents. First, Huawei voluntarily provided Mr. Huang with authenticated engineering schematics that establish that the structure and operation of the accused chip circuitry does not meet a particular limitation of the '653 and '331 patent claims. See Huawei Br. 4, ECF No. 179. Second, Huawei reviewed confidential source code, determined that the code demonstrated noninfringement, and repeatedly told Mr. Huang that if he would hire an attorney, the attorney could see for him or herself. Id. Mr. Huang refused, and as far as the record reveals, ignored Huawei's evidence demonstrating noninfringement.

Not only did Mr. Huang ignore Huawei's schematics and representations about the accused products, but Mr. Huang became more aggressive as the case progressed and his case weakened. As late as a few days before the hearing on Huawei's motion for attorneys' fees, Mr. Huang was still filing objections and requests for reconsideration of the Court's Order dismissing his case. See, e.g., ECF No. 195. This was well after Mr. Huang had been warned of the consequences of vexatious ligation behavior. See Huawei Br. 2-3, ECF No. 179. In sum, Mr. Huang's case has unnecessarily burdened Huawei and the Court with what appears to have been a frivolous case from the outset. The Court therefore finds Mr. Huang's case to be exceptional and Mr. Huang's litigation

behavior to constitute bad faith and an abuse of the judicial process.

To support this finding, the declarations submitted by Huawei's in house counsel suggest that Mr. Huang's motive all along was to extract a settlement by whatever means necessary. Indeed, Mr. Huang's motion practice increased while the strength of his case gradually declined, which is consistent with Huawei's sworn statement that Mr. Huang believed and represented to Huawei that if he bombarded Huawei with motions, Huawei's attorneys' fees would continue to rise, and, eventually, Huawei would decide to settle. See, e.g., Li Pengyan Decl., ECF No. 179-1. Mr. Huang's only response to these statements is that they are untruthful, indeed, "perjury," as Mr. Huang characterizes them. There is no basis for that conclusion.

Finally, Mr. Huang's pro se status does not relieve him from liability for attorneys' fees and costs. The Court provided Mr. Huang ample opportunity to seek legal counsel, and there is no indication that this invitation was seriously considered. Moreover, Huawei repeatedly warned Mr. Huang about the consequences of frivolous litigation behavior. Although Mr. Huang is not an attorney, he is a sophisticated pro se litigant, an engineer, and a business owner. Courts have found pro se plaintiffs such as Mr. Huang liable for attorneys' fees simply because their patent infringement actions had no evidentiary basis. See Yufa v. TSI Inc., No. 09-CV-01315-KAW, 2014 WL 4071902, at *4 (N.D. Cal. Aug. 14, 2014); Comora v. Thermo Cardiosystems, Inc., No. CV 91-5620 WMB, 1992 WL 315226, at *4 (C.D. Cal. May 5, 1992).

That is the least that can be said about this case. The Court therefore finds the case exceptional under § 285 and worthy of additional costs under the Court's inherent powers.

CONCLUSION

In light of the foregoing, Huawei's motion for attorneys' fees and costs, ECF No. 179, is GRANTED. Huawei is ORDERED, within seven days of this Order, to submit a revised motion detailing the attorneys' fees and costs that it seeks, separately identifying the fees and costs awardable under § 285 and costs awardable under the Court's inherent powers, as well as the dates those fees and costs were incurred. Mr. Huang is given fourteen days to respond to Huawei's revised motion, after which the Court will determine the appropriate amount of the award.

SIGNED this 25th of March,2017

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, Plaintiff, v. HUAWEI TECHNOLOGIES CO. LTD., Defendant.	§ § § § § § § § §	CIVIL ACTION NO. 2:15-cv-1413 JRG/ RSP

ORDER GRANTING MOTION TO DISMISS COUNTERCLAIMS WITHOUT PREJUDICE AND TO ENTER FINAL JUDGMENT

Before the Court is Defendant Huawei Technologies Co. Ltd.'s Motion to Dismiss Counterclaims Without Prejudice and To Enter Final Judgment, filed February 7, 2017 Huawei's Motion is GRANTED, and Final Judgment shall be entered accordingly. Defendant's counterclaims are dismissed without prejudice.

SIGNED this 7th day of February,2017

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, Plaintiff, v. HUAWEI TECHNOLOGIES CO. LTD., Defendant.	§ § § § § § § §	CIVIL ACTION NO. 2:15-cv-1413 JRG/ RSP

ORDER

Plaintiff Huang filed a motion requesting that the Court file perjury charges against witnesses of Defendant Huawei (Dkt. No. 170), despite the fact that Mr. Huang's claims have been dismissed on summary judgment. Mr. Huang has no authority nor basis to charge Huawei with perjury. Accordingly, Mr. Huang's motion (Dkt. No. 170) is DENIED.

SIGNED this 19th day of January,2017

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff, v. HUAWEI TECHNOLOGIES CO. LTD., Defendant.	§	CIVIL ACTION NO. 2:15-cv-1413 JRG/ RSP

ORDER

Before the Court is Plaintiff Xiaohua Huang's Appeal (Dkt. 148) to the District Court in Objection to the Magistrate Judge's Decision concerning non-dispositive matters filed at Dkt. 134. The Objections filed by Mr. Huang do not establish the Magistrate Judge's decision to be clearly erroneous or contrary to law. See 28 U.S.C. § 636(b)(1)(A). Accordingly, Mr. Huang's Appeal (Dkt. 148) is DENIED. Mr. Huang's claims stand DISMISSED. See Dkt. 146.

So ORDERED and SIGNED this 21st day of December,2016

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, Plaintiff, v. HUAWEI TECHNOLOGIES CO. LTD., Defendant.	§ § § § § § § § §	CIVIL ACTION NO. 2:15-cv-1413 JRG/RSP

ORDER

Before the Court is the Report and Recommendation filed by Magistrate Judge Payne on November 22, 2016 (Dkt. 134) recommending that Defendant Huawei's Motion for Summary Judgment (Dkt. 105) be granted. Having considered the Objections filed by Plaintiff Xiaohua Huang (Dkt. 144) and finding them to be without sufficient merit, the Recommendation is adopted.

IT IS ORDERED that the Motion for Summary Judgment (Dkt. 105) is GRANTED. Plaintiff's claims are hereby DISMISSED.

So ORDERED and SIGNED this 7th day of December, 2016.

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS MARSHALL D IVISION

XIAOHUA HUANG, Plaintiff, v. HUAWEI TECHNOLOGIES CO. LTD., Defendant.	§ § § § § § § §	CIVIL ACTION NO. 2:15-cv-1413 JRG/ RSP

ORDER AND REPORT AND RECOMMENDATION

Before the Court is Defendant Huawei's motion for summary judgment (Dkt. 105), Plaintiff Mr. Huang's motions to compel (Dkt. 107, 115), Mr. Huang's motions to strike (Dkt. 126, 127, 130), Mr. Huang's motion for leave to add an expert witness (Dkt. 132), and Defendant's motion to strike (Dkt. 114). Upon careful consideration, the Court must DENY Mr. Huang's motions to strike (Dkt. 126, 127, 130) and DENY Mr. Huang's motion for leave to add an expert witness (Dkt. 132). In addition, the Court RECOMMENDS that Huawei's motion for summary judgment (Dkt. 105) be GRANTED for the following reasons. The Court resolves the remaining motions as follows.

The Court held a hearing in this case on July 27, 2016 to address pending motions to compel filed by Mr. Huang. Mr. Huang appeared pro se and explained to the Court that he had chosen not to retain counsel for this matter. The Court explained to Mr. Huang that because he is not an attorney, he is not permitted to access material designated as "ATTORNEYS' EYES ONLY" under the protective order. The Court explained that the

material sought by Mr. Huang was properly designated as such under the protective order. Accordingly, the Court denied

Mr. Huang's motions to compel without prejudice and stayed the case until September 28, 2016 to provide Mr. Huang an opportunity to hire counsel. See Dkt. 93.

Mr. Huang did not hire counsel. Rather, Mr. Huang continued filing motions, including motions to compel requesting material designated under the protective order, except that Mr. Huang is now requesting that defense counsel provide designated material to Mr. Huang's newly-retained experts given that certain experts are covered by the protective order. See Dkt. 107, 115. Mr. Huang's experts are not attorneys, however, and providing them with discovery would be of no use to Mr. Huang. Accordingly, and for the same reasons explained to Mr. Huang at the hearing in July, Mr. Huang's motions to compel (Dkt. 107, 115) are DENIED.

Huawei moved for summary judgment of noninfringement on September 29, 2016 (Dkt. 105), arguing that Mr. Huang has failed to identify a triable issue with respect to alleged infringement of the '259, '653, and '331 patents. The Court agrees. Given that Mr. Huang chose not to hire counsel, he has not been able to obtain information from Huawei about the accused products. Mr. Huang has not otherwise raised a triable issue of fact in response to Huawei's motion for summary judgment. See Fed. R. Civ. P. 56. Mr. Huang highlights several alleged reverse engineering records, but the Court must GRANT Huawei's motion to strike (Dkt. 114) these records because

Mr. Huang failed to produce them during discovery. Accordingly, it is RECOMMENDED that Huawei's motion for summary judgment (Dkt. 105) be GRANTED.

A party's failure to file written objections to the findings, conclusions, and recommendations contained in this report within fourteen days after being served with a copy shall bar that party from de novo review by the district judge of those findings, conclusions, and recommendations and, except on grounds of plain error, from appellate review of unobjected-to factual findings and legal conclusions accepted and adopted by the district court. Fed. R. Civ. P. 72(b)(2); see Douglass v. United Servs. Auto. Ass'n, 79 F.3d 1415, 1430 (5th Cir. 1996) (en banc).

SIGNED this 22nd day of November, 2016

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

XIAOHUA HUANG,	§	
	§	
Plaintiff,	§	CIVIL ACTION NO.
v.	§	2:15-cv-1413 JRG/
HUAWEI TECHNOLOGIES CO. LTD.,	§	RSP
	§	
Defendant.	§	
	§	

ORDER

The Court held a hearing Wednesday, July 27, 2016 on several pending matters. The Court's rulings are as follows:

The Court GRANTS Defendant's letters (Dkt. Nos. 54, 87) requesting leave to file motions for summary judgment. To simplify this case, the Court will not impose a requirement that parties submit further letter briefs seeking permission to file summary judgment motions. Parties may file any summary judgment motion prior to the deadline to file dispositive motions without seeking or obtaining leave of Court.1 However, no party should file any summary judgment motion until after the expiration of the stay ordered herein.

The Court DEFERS ruling on Defendant's Motion for Rule 11 Sanctions (Dkt No. 52)
until after the resolution of Defendant's summary judgment motion(s) of non-infringement.

The Court finds that Plaintiff has not shown good cause to add approximately 74 new accused products to this case given the stage of the litigation and the fact that claim construction

1 Per Local Rule CV-7(a), case dispositive motions shall not exceed thirty (30) pages, non-dispositive

motions shall not exceed fifteen (15) pages, and a party's summary judgment motions shall not exceed a collective total of sixty (60) pages. briefing has taken place. The Court therefore DENIES Plaintiff's Motion to File a Fourth Amended Complaint (Dkt. No. 55) and Plaintiff's Motion to Supplement Infringement Contentions (Dkt. No. 56).

The Court finds that most of the discovery requested in Plaintiff's Motion to Compel2 (Dkt. No. 76) is classifiable as "RESTRICTED - ATTORNEYS' EYES ONLY" or "RESTRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33). By the agreed terms of that Order, these materials may be disclosed only to outside counsel of record, certain outside consultants or experts, and the Court.

See (Dkt. No. 33 at ¶¶ 5, 9, 10). The terms of the Agreed Protective Order do not permit pro se Plaintiff Huang to obtain or review these materials personally.

Accordingly the Court DENIES WITHOUT PREJUDICE Plaintiff's Motion to

Compel (Dkt. No. 76). Plaintiff may re-file the Motion when he has retained outside counsel who can receive the requested discovery under the terms of the Protective Order.

The Court further ORDERS that all deadlines in this case are STAYED until September

28, 2016. Plaintiff is instructed to use this time to consider whether he wishes to maintain this lawsuit and to seek the assistance of counsel.3 If Plaintiff no longer wishes to maintain this lawsuit he should petition the Court for dismissal

without prejudice before the stay expires.

2 Plaintiff's Motion to Compel requests the production of, e.g., source code, data sheets, manufacturing process specifications, and a confidential license agreement between Huawei and a third party.

3 The American Bar Association, the U.S. Patent and Trademark Office, and the Eastern District of Texas websites provide resources that may assist Plaintiff in locating a qualified attorney:

http://apps.americanbar.org/legalservices/findlegalhelp/home.cfm

http://www.uspto.gov/learning-and-resources/patents-help/united-states-map

http://www.txed.uscourts.gov/page1.shtml?location=resources

Plaintiff is not required to use these resources, but may wish to consider using them

SIGNED this 27th day of July, 2016

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

US patent RE45259

Hit ahead hierarchical scalable priority encoding logic and circuits

Abstract

In this invention a hit ahead multi-level hierarchical scalable priority encoding logic and circuits are disclosed. The advantage of hierarchical priority encoding is to improve the speed and simplify the circuit implementation and make circuit design flexible and scalable. To reduce the time of waiting for previous level priority encoding result, hit signal is generated first in each level to participate next level priority encoding, and it is called Hit Ahead Priority Encoding (HAPE) encoding. The hierarchical priority encoding can be applied to the scalable architecture among the different sub-blocks and can also be applied with in one sub-block. The priority encoding and hit are processed completely parallel without correlation, and the priority encoding, hit generation, address encoding and MUX selection of the address to next level all share same structure of circuits.

Inventors: **Huang; Xiaohua** (San Jose, CA)

Applicant:

Name	**Ciy**	**State**	**Country**	**Type**
Huang; Xiaohua	San Jose	CA	US	

Family ID: **34915183**

Appl. No.: **13/355,449**

Filed: **January 20, 2012**

Related U.S. Patent Documents

	Application Number	Filing Date	Patent Number	Issue Date
	60550537	Mar 4, 2004		
Reissue of:	11073116	Mar 4, 2005	7652903	Jan 26, 2010

Current U.S. Class:	**365/49.1**; 365/230.01; 365/230.05; 365/230.06
Current CPC Class:	G11C 15/00 (20130101); G06F 7/74 (20130101)
Current International Class:	G11C 15/00 (20060101)
Field of Search:	;365/49.1,230.01,230.05,230.06

References Cited [Referenced By]

U.S. Patent Documents

6249449	June 2001	Yoneda et al.
6307767	October 2001	Fuh
6392910	May 2002	Podaima et al.
6505271	January 2003	Lien et al.
7043601	May 2006	McKenzie et al.
7464217	December 2008	Braceras et al.

Primary Examiner: Yang; Han

Parent Case Text

This application claims the benefit of provisional U.S. Application Ser. No. 60/550,537, entitled "Priority encoding logic and Circuits," filed Mar. 4, 2004, which is incorporated herein by reference in its entirety for all purposes.

Claims

What is claimed is:

1. A content address able memory(CAM) and hit ahead priority encoding(HAPE) logic, comprising: a group of blocks which is arranged in column and row, each block has equal number of CAM match signals which are the input signals of priority encoding logic, each block has same priority encoding logic of CAM match signals within the block, the CAM match signals or input signals are arranged from lower priority to higher priority or from higher priority to lower priority, each CAM match signals or input signal has either high logic level "one" which is called hit or low logic level "zero" which is called miss, each block generates block hit when there is at least one CAM match signal is high logic "one" within the block or block miss signal when all the CAM match signals are in low logic level "zero" within the block and block binary address signal corresponding to the CAM match signals of highest priority within the block, a priority encoding logic of block hit or miss signals of each column, each column generates a column hit signal when there is at least one block hit signal within the column or column miss signal when there is only block miss signals

within the column and column binary address corresponding to the CAM match signals of highest priority within the column, a priority encoding logic of column hit or miss signals of a group column, a group of column generates a hit signal when there is at least one column hit signal within the group column or a miss signal when there is only column miss signals within the group column and a group column binary address corresponding to the CAM match signals of highest priority within the group column.

2. A content address able memory(CAM) and hit ahead priority encoding(HAPE) logic of claim 1, further comprising: a block multiplexer to select the binary address from the block of highest priority hit within the column as less significant portion of the column binary address; and a priority encoding logic of block hit signals to generate the block multiplexer control signal which select the block of highest priority hit within the column, and a binary address encoding logic of block hit signals to generate the more significant portion of the column highest priority binary address.

3. A content address able memory(CAM) and hit ahead priority encoding(HAPE) logic of claim 1, wherein each block comprises: a group of sub-blocks, each sub-block has equal number of input signals, each sub-block has priority encoding and binary address encoding logic to generate sub-block highest priority binary address as well as hit or miss generating logic to generate sub-block

hit or miss signal, and the sub-block hit or miss signal is generated independently before sub-block binary address; a block hit or miss generating logic to generate block hit or miss signal and block hit or miss signal is generated independently before the block binary address is generated; a sub-block multiplexer to select the binary address from the highest priority sub-block within the block as less significant portion of block binary address; and a priority encoding logic of each sub-block hit signals to generate the control signal of sub-block multiplexer, and a binary address encoding logic of each sub-block hit signals to generate the more significant portion of block binary address.

4. A content addressable memory(CAM) and hit ahead priority encoding(HAPE) logic of claim 3, wherein priority encoding logic, address encoding logic and multiplexer have the logic circuit of same structure.

5. A content address able memory(CAM) and hit ahead priority encoding(HAPE) logic of claim 4, wherein the hit generating logic, priority encoding logic, address encoding logic and multiplexer have dynamic NOR logic.

6. A content address able memory(CAM) and hit ahead priority encoding(HAPE) logic of claim 2, wherein the signal of controlling the multiplexer is generated before or in the same time that the less significant portion of the highest priority local address is generated.

.Iadd.7. A content addressable memory (CAM) and hit ahead priority encoding (HAPE) logic, comprising: a group of blocks which are arranged in columns and rows, each block having an equal number of CAM match signals which are the input signals of priority encoding logic, each block having a same priority encoding logic of CAM match signals within the block, the CAM match signals or input signals arranged from lower priority to higher priority or from higher priority to lower priority, each CAM match signal or input signal being either a high logic level "one which is called hit or a low logic level "zero" which is called miss, each block configured to generate a block hit signal when there is at least one CAM match signal that is a high logic level "one" within the block or a block miss signal when all the CAM match signals are a low logic level "zero" within the block and a block binary address signal corresponding to the CAM match signals of highest priority within the block; a priority encoding logic of block hit or miss signals of each column, each column configured to generate a column hit signal when there is at least one block hit signal within the column or a column miss signal when there are only block miss signals within the column and a column binary address corresponding to the CAM match signals of highest priority within the column; and a priority encoding logic of column hit or miss signals of a group column, the group column configured to generate a hit signal when there is at least one column hit signal within the group column or a

miss signal when there are only column miss signals within the group column and a group column binary address corresponding to the CAM match signals of highest priority within the group column. .Iaddend.

.Iadd.8. The content addressable memory (CAM) and hit ahead priority encoding (HAPE) logic of claim 7, further comprising: a block multiplexer configured to select a binary address from the block having the highest priority hit within the column as a less significant portion of the column binary address, the priority encoding logic of block hit signals being configured to generate a block multiplexer control signal for selecting the block having the highest priority hit within the column; and a binary address encoding logic of block hit signals configured to generate a more significant portion of the column binary address. .Iaddend.

.Iadd.9. The content addressable memory (CAM) and hit ahead priority encoding (HAPE) logic of claim 7, wherein each block comprises: a group of sub-blocks, each sub-block having an equal number of input signals, each sub-block having priority encoding and binary address encoding logic configured to generate a sub-block highest priority binary address as well as hit or miss generating logic configured to generate a sub-block hit or miss signal, the sub-block hit or miss signal being generated independently before the sub-block binary address; a block hit or miss generating logic configured to generate a block hit or miss signal, the block hit or miss signal being

generated independently before the block binary address is generated; a sub-block multiplexer configured to select a binary address from a highest priority sub-block within the block as a less significant portion of the block binary address; and a priority encoding logic of each sub-block hit signals configured to generate a control signal of the sub-block multiplexer; and a binary address encoding logic of the sub-block hit signals configured to generate a more significant portion of the block binary address. .Iaddend.

.Iadd.10. The content addressable memory (CAM) and hit ahead priority encoding (HAPE) logic of claim 9, wherein the priority encoding logic, the address encoding logic, and the multiplexer have logic circuitry of the same structure. .Iaddend.

.Iadd.11. The content addressable memory (CAM) and hit ahead priority encoding (HAPE) logic of claim 10, wherein the hit generating logic, the priority encoding logic, the address encoding logic, and the multiplexer have dynamic NOR logic. .Iaddend.

.Iadd.12. The content addressable memory (CAM) and hit ahead priority encoding (HAPE) logic of claim 8, wherein a signal for controlling the multiplexer is generated before or at the same time that the less significant portion of the highest priority local address is generated. .Iaddend.

.Iadd.13. A content addressable memory (CAM)

system, comprising: one or more columns comprising a plurality of circuit segments, at least one of the circuit segments configured to generate a first circuit segment output based on whether at least one of a plurality of circuit segment inputs received by the at least one of the circuit segments corresponds to a first logic level, at least one of the one or more columns configured to generate first address information based on a selected one of the first circuit segment outputs that corresponds to a second logic level, to set a node to a third logic level in response to a first input signal, and to subsequently change the node to a fourth logic level in response to one or more of a plurality of second input signals. .Iaddend.

.Iadd.14. The CAM system of claim 13, wherein the first circuit segment output represents circuit segment hit information. .Iaddend.

.Iadd.15. The CAM system of claim 13, wherein the at least one of the plurality of circuit segment inputs represents match information. .Iaddend.

.Iadd.16. The CAM system of claim 13, wherein the selected one of the first circuit segment outputs is a highest priority one of the first circuit segment outputs that corresponds to the second logic level. .Iaddend.

.Iadd.17. The CAM system of claim 13, wherein: the one or more columns are a plurality of columns, and the plurality of circuit segments are arranged in the plurality of columns and a

plurality of rows. .Iaddend.

.Iadd.18. The CAM system of claim 13, wherein: the one or more columns are a group of columns; each column in the group configured to generate a column output based on the first circuit segment output of the at least one of the circuit segments; and the group configured to generate second address information based on a selected one of the column outputs that corresponds to a fifth logic level. .Iaddend.

.Iadd.19. The CAM system of claim 13, wherein: the at least one of the one or more columns is configured to pre-charge the node in response to the first input signal; and the at least one of the one or more columns is configured to subsequently discharge the node in response to the one or more of the plurality of second input signals. .Iaddend.

.Iadd.20. The CAM system of claim 13, wherein the first input signal is configurable independently of the one or more of the plurality of second input signals. .Iaddend.

.Iadd.21. The CAM system of claim 13, wherein the first logic level and the second logic level are the same logic level. .Iaddend.

.Iadd.22. The CAM system of claim 13, wherein the one or more columns comprise: a first logic circuit configured to generate a first logic circuit output based on the selected one of the first circuit segment outputs that corresponds to the second

logic level; a second logic circuit configured to generate a second logic circuit output based on whether the first circuit segment output corresponds to the second logic level; and a third logic circuit configured to generate the first address information based on the selected one of the first circuit segment outputs that corresponds to the second logic level. .Iaddend.

.Iadd.23. The CAM system of claim 22, wherein at least one of the first logic circuit, the second logic circuit, and the third logic circuit is configured to set the node to the third logic level in response to the first input signal, and to subsequently change the node to the fourth logic level in response to the one or more of the plurality of second input signals. .Iaddend.

.Iadd.24. The CAM system of claim 22, wherein: the at least one of the circuit segments is configured to generate a second circuit segment output representing second address information; and the one or more columns further comprise: a fourth logic circuit configured to select one of the second circuit segment outputs as a less significant portion of the first address information; and a fifth logic circuit configured to generate a more significant portion of the first address information. .Iaddend.

.Iadd.25. The CAM system of claim 24, wherein at least one of the fourth logic circuit and the fifth logic circuit is configured to set the node to the third logic level in response to the first input

signal, and to subsequently change the node to the fourth logic level in response to the one or more of the plurality of second input signals. .Iaddend.

.Iadd.26. The content addressable memory (CAM) system of claim 24, wherein the one or more columns are each configured to generate a control input for the third logic circuit before or at the same time when the second circuit segment output is generated. .Iaddend.

.Iadd.27. The content addressable memory (CAM) system of claim 22, wherein: the plurality of circuit segment inputs is divided into a plurality of subsets of the circuit segment inputs; and the first logic circuit comprises: a plurality of fourth logic circuits each configured to generate a fourth logic circuit output based on whether at least one of a corresponding subset of the circuit segment inputs corresponds to the first logic level; and a fifth logic circuit configured to generate the first circuit segment output based on whether at least one of the fourth logic circuit outputs corresponds to the first logic level. .Iaddend.

.Iadd.28. The CAM system of claim 27, wherein: at least one of the fourth logic circuit and the fifth logic circuit is configured to set the node to the third logic level in response to the first input signal, and to subsequently change the node to the fourth logic level in response to the one or more of the plurality of second input signals; and the fourth logic circuit output is an input to the fifth logic circuit. .Iaddend.

.Iadd.29. A content addressable memory (CAM) system, comprising: a circuit segment configured to generate a circuit segment output based on whether at least one of a plurality of circuit segment inputs received by the circuit segment corresponds to a first logic level, the circuit segment configured to set a node to a second logic level in response to an input signal, and to subsequently change the node to a third logic level in response to the plurality of circuit segment inputs, the circuit segment output corresponding to said third logic level. .Iaddend.

.Iadd.30. The CAM system of claim 29, wherein at least one of the plurality of circuit segment inputs corresponds to a match line output. .Iaddend.

.Iadd.31. The CAM system of claim 29, wherein the circuit segment output represents circuit segment hit information. .Iaddend.

.Iadd.32. The CAM system of claim 29, wherein at least one of the plurality of circuit segment inputs represents match information. .Iaddend.

.Iadd.33. The CAM system of claim 29, wherein: the circuit segment is configured to pre-charge the node in response to the input signal; and the circuit segment is configured to subsequently discharge the node in response to the plurality of circuit segment inputs. .Iaddend.

.Iadd.34. The CAM system of claim 29, wherein

the input signal is configurable independently of the plurality of circuit segment inputs. .Iaddend.

.Iadd.35. The CAM system of claim 29, wherein the first logic level and the third logic level are the same logic level. .Iaddend.

.Iadd.36. The CAM system of claim 29, wherein the circuit segment is a first circuit segment, and further comprising a second circuit segment configured to generate address information based on the circuit segment output. .Iaddend.

Description

FIELD OF THE INVENTION

The presentation relates to content addressable memory. In particular, the present invention relates to logic and circuits of priority encoding of match or hit address.

BACKGROUND OF THE INVENTION

In ternary content addressable memory, not every bit in each row are compared in the searching or comparing process, so some time in one comparison, there are more than one row matching the input content, it is called multi-hit or match. In multi-hit case, one protocol was made to select the highest priority address. The logic of selecting the highest priority address is called priority encoding.

Assume we have {A.sub.0, A.sub.1, . . . A.sub.n-1} hit signals from the corresponding addresses and define A.sub.0 has the highest priority and A.sub.n has the lowest priority. Assume some of

{A.sub.0, A.sub.1, . . . A.sub.n-1, A.sub.n} are logic "1" and all of the others are logic "0", the priority encoding keep the highest priority "1" as "1" and convert all the other "1" into "0". The logic operation of this transform:
.times..times. .times..times. ##EQU00001## can logically be expressed as:
.times..times..times..times..times. ##EQU00002##
Which means only when A.sub.0 to A.sub.i-1, are all zero, h.sub.i=A.sub.i, otherwise no matter A.sub.i=0 or 1, h.sub.i=0.

After the priority encoding, the hit address with the highest priority will be encoded to the binary address.

If the entry N are large, say 1K to 128K or even 1M, the calculation of priority logic (2) will take long time if we use serial logic. So we come out the inventions which will be described in the following.

SUMMERY OF THE INVENTION

In this invention, we propose a multi-level hierarchical scalable priority encoding. For example we make 8 entry as one group as first level and 8 first level as a second level, total 64 entry. Then we can make 8 second level as third level, total 512 entry, and so on. The advantage to make hierarchical priority encoding is to improve the speed, and simplify the circuit implementation and make circuit design flexible and scalable.

To reduce the time of waiting for previous level

priority encoding result, we generate the hit signal first in each level to participate next level priority encoding, and we call it Hit Ahead Priority Encoding (HAPE) encoding.

The hierarchical priority encoding can be applied to the scalable architecture among the different sub-blocks and can also be applied with in one sub-block.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention will now be described, by way of example only, with reference to the attached Figures, wherein:

FIG. 1 is a block diagram of scalable architecture of CAM with many sub-block in accordance with one embodiment of the present invention.

FIG. 2a is a logic block diagram of hierarchical priority encoding and match address binary encoding within one sub-block in accordance with one embodiment of present invention.

FIG. 2b is the and timing diagram in accordance with FIG. 2b of present invention.

FIG. 3 is a logic block diagram of hierarchical priority encoding and match address binary encoding in higher level or among the different sub-block and timing diagram in accordance with one embodiment of present invention.

FIG. 4 is the circuit implementation of priority encoding with 8 input address in accordance with one embodiment of present invention.

FIG. 5 is the circuit implementation of the HIT generation logic address in accordance with one embodiment of present invention.

FIG. 6 is the circuit implementation of binary encoding logic in accordance with one embodiment of present invention.

FIG. 7 is the circuit implementation of 8 to 1 mux in accordance with one embodiment of present invention.

DETAILED DESCRIPTION OF THE INVENTIONS

To make the priority encoding logic calculation quicker, the entire CAM block can be divided into 256 block and divided into four quadruple, each quadruple has 8.times.8=64 block and each block has 8.times.8=64 entry as shown in FIG. 1 with embodiment 100.

This is just to explain the principle, the entry number of each sub-block and the number of sub-block can be different. Assume the data pad 110 are equally distributed in four side of the chip. If all of the data pad 110 are in one side or less than four side, the principle is same.

First step, route all the data signal in each side

(only one side are drawn in the FIG. 1) to the middle point of that side, which is shown as route 101a in FIG. 1. Second step, route all the data signal to the center of the chip shown as route 102a in FIG. 1. Third step, in the center point send the data to be compared to both left and right side (only right side path 103a is shown in FIG. 1. Fourth step, send data to each one of the 8 column both upper part and down part shown as 104a in FIG. 1. Fifth step, the data to be compared are then sent to each sub-block 120 in each column to perform the comparison with each entry in every sub-block 120. In embedded application, the entry number of TCAM is not very large. In that case, the data path start from path 104a. If only some selected sub-block are searched or compared, the data to be compared will only be sent into those sub-block to save power consumption. After comparison with each entry inside each sub-block 120, the first level and second level priority encoding and binary encoding are performed which will be explained in details in FIG. 2, then the priority encoding in each column 130 among 8 sub-block will be performed as third level priority encoding and the hit address are sent out through path 104b. Next step fourth level priority encoding will be performed among 8 column 130 in each quadruple and the Hit address are sent out through path 103b. Next step the priority encoding will be performed in the center of chip among four quadruple and the hit address will be sent through path 102b. Last step the hit address are sent to the output pad 110 through path 101b. The priority encoding among upper quadruple and lower part quadruple can be

performed together in path 103b.

The priority encoding logic calculation block diagram for each 8.times.8=64 entry sub-block 120 are shown in FIG. 2a with embodiment 200a. Each 8 entry of 64 entry are grouped together to do hit logic function from 2h0 to 2h7 and generate Hit[0] to Hit[7] in block 201. In the same time each 8 entry of 64 entry are performed priority encoding logic calculation in each block from 2p0 to 2p7 of embodiment block 202 to generate P[63:0], then proceed binary encoding from 2e0 to 2e7 in embodiment block 203 to generate any three bit BA0[2:0] to BA7[2:0] binary address if there is a hit in any 8 bit group. The eight signal of Hit[0] to Hit[7] from block 201 will perform priority encoding in block 206 which is logically exact same as the priority encoding in each 8 entry group from 2p0 to 2p7. The Priority Hit Ph[7:0] from Hit[0] to Hit[7] will select the 8 to 1 mux 204 and select one three bit binary address from BA0[2:0] to BA7[2:0] and become Add1[2:0]. The priority bit of Hit[0] to Hit[7] is binary encoded in block 207 which is logically same as the binary encoding block from 2e0 to 2e7 to generate the address: Add1[5:3]. Add1[5:3] and Add1[2:0] make Add1[5:0]. Hit[0] to Hit[7] further perform the logic function in block 2hh which is logically same as any block 2h0 to 2h7 and generate the next level Hit1. Both Add1[5:0] and Hit1 will be passed to the next level.

The timing diagram of embodiment 200a is shown in FIG. 2b with embodiment 200b. Assume all the Hit or miss signal from TCAM comparison A[i]

(A[63:0])which is drawn as signal 240 are available in time t.sub.0, the first level hit signal Hit[7:0] generated by block 2h0 to 2h7 are drawn as 241 which is available at time t.sub.1. In the same time A[63:0] are divided into eight group and priority encoded by block 2p0 to 2p7, generating P[0] to P[63] which are drawn as 244 and available at time t.sub.1. The time delay of generating Ph[7:0] which are drawn as 246 and the time delay of generating.

BA0[2:0] to BA7[2:0] which are drawn as 245 are roughly same and they are generated in time t.sub.2. So the Binary address Add1[2:0] which are drawn as 248 are selected by Ph[7:0] from the 8 group address BA0[2:0] to BA7[2:0] through an eight to one MUX 204 without any further delay except the delay of MUX itself which is (t.sub.3-t.sub.2), and the address Add1[5:3] which are drawn as 247, Add1[2:0] and Add[5:0] which are drawn as 249 are available at time t.sub.3.

So the total delay from A[63:0] available to the output of binary hit address Add1[5:0] is about three stage delay(priority 2p0, binary encoding 2e0 and 8 to 1 MUX 204), where we call each block(2p0, 2e0 and 204 etc) as one stage. The delay of Hit1 243 is two stage delay. So the output of Hit1 which is available at t.sub.2 which is one stage earlier than the output of binary Hit address Add1[5:0] 249 which is available at t.sub.3. Only Hit1 and Add1[5:0] are sent to the next level priority encoding. The entire sub-block are abstracted as symbol 208. The timing delay of hit, priority encoding, binary encoding and 8 to 1 mux will be

analyzed in details.

FIG. 3 is the logic block diagram of priority encoding of higher level among the eight group of 64 entry sub-block or among the 8 sub-block in every column 130 in FIG. 1. The Hit signal Hit1[7:0] which is marked as 313 in FIG. 3 are one stage earlier than the binary hit address Add10[5:0] to Add17[5:0] which are marked as 314. Eight bit HIT signal of Hit1[7:0] perform priority encoding in block 309, then the priority hit signal Ph1[7:0] will select Add2[5:0] from the eight input MUX 311.

In the same time Ph1[7:0] are encoded into binary address Add2[8:6] in block 310. Add2[8:6] and Add2[5:0] make Add2[8:0]. In block 308 eight input Hit1[7:0] generate Hit2 at time t.sub.3 which is one stage earlier than Binary hit address Add2[8:0]. From the timing diagram 340 in FIG. 3, the delay of binary hit address Add1i[5:0] which is signal 314 to Add2[8:0] which is marked as 319 is an 8 to 1 MUX delay which is (t.sub.4-t.sub.3), where i=0 to 7. In this hierarchical priority design, the delay on each level is an 8 to 1 MUX delay because the selection signal from the priority encoding among the hit signals is available one stage earlier and there is no extra delay to wait for the selection signal.

Another advantage of this hierarchical priority encoding is that the simplicity of circuit design. We already see that each level shares the same logic and circuit design. Say, the priority function block 206, 309 in each level are same in logic and circuit,

which is shown in FIG. 4, embodiment 400.

Embodiment 400 in FIG. 4 is a sample implementation of the priority logic equation (2) which can be deduced to equation (3), where n=7.

.times..times..times..times..times..times..times..ti
mes..times..times. ##EQU00003##

The equation (3) is implemented as embodiment 400 in FIG. 4. Each line from 4y0 to 4y7 connect the drains of a few N transistors and each line 4y0 to 4y7 is the output of dynamic NOR logic of N transistor connected to that line. At the beginning of each cycle, the gate input signals A.sub.0 to A.sub.7 and A.sub.0 to A.sub.7 of all the N transistor from 401 to 436 are set to logic zero which turn off all the N transistors and the enable signal en is set to logic zero which makes all the output of NAND gate 445 to 452 to logic one and then turn all the output of inverter 453 to 460 into logic zero. The input pch of the P transistors 437 to 444 are set to logic zero and the P transistor 437 to 444 are turned on, which make the line 4y0 to 4y7 connecting to Vdd with low impedance and pre-charge the potential level of line 4y0 to 4y7 up to Vdd, then the signal pch is turned into Vdd and turn off the P transistors 437 to 444 before the TCAM comparison results A.sub.0 to A.sub.7 and their complementary .sub.0 and .sub.7 arrive. The Hit signal among A0 to A7 will be logical "one" at potential Vdd and the missed signal among A0 to A7 will be logical zero at potential ground. Only the highest priority hit, the output of the NOR gates

are logically high. For example, A.sub.0=0, A.sub.1=0, A.sub.2=Vdd and A.sub.3=Vdd, the highest priority hit is A.sub.2. The input of N transistor 401 is Vdd and N transistor 401 is turned on and the node 4y0 is discharged to ground. The input of transistor 402 which is the complementary of A.sub.1 is also Vdd and the transistor 402 is ON, the node of 4y1 is also discharged to ground.

Since A.sub.0=0, A.sub.1=0, A.sub.2=Vdd, .sub.2=0, so the inputs of transistors 404, 405, 406 are all zero and the transistor 404, 405, 406 are all OFF and the node 4y2 will not be discharged and will be kept logically "one" at potential Vdd. Since A.sub.2=Vdd, the inputs of transistors 408, 413, 419, 426 and 434 will be Vdd and all the node 4y3, 4y4, 4y5, 4y6 and 4y7 will be pulled to ground no matter if A.sub.3, A.sub.4, A.sub.5, A.sub.6 and A.sub.7 are logically one or zero. The slowest path or worst case is only one input among eight N transistor 429, 430, 431, 432, 433, 434, 435 and 436 connected to node 4y7 is Vdd and all the others are zero, in that case one transistor need to discharge the drain parasitic capacitance of eight transistor and the metal wire capacitance connected to node 4y7. The signal en is characterized to turned to Vdd later then node 4y7 is discharged in worst case. The worst case delay of eight input priority encoding is that one N transistor discharging the drain parasitic capacitance of eight same size N transistor down to ground plus the delay of one NAND gate and one inverter.

The logic of Hit function block 2h0, 2h1, . . . 2hh and 308 in each level is also same and its logic and circuit are shown in FIG. 5. The embodiment 510 is the circuit implementation of one block 2h0 and the embodiment 520 is the circuit implementation of both block 201 and block 2hh in FIG. 2a together. The operation principle of 510 is: 1) all the input A0 to A7 are set to zero as in embodiment 400 in FIG. 4. 2) Set the gate input 522 of P transistor 501 to zero to pre-charge the node 503 to Vdd, then turn 522 to Vdd and turn off the P transistor 501 before the signal A0 to A7 arrive. If all the input A0 to A7 are zero, the input of N transistors are zero and all the N transistors 502 are OFF and the node 503 is kept in Vdd and the output signal of inverter 504 is zero. If only one input among A0 to A7 is Vdd and all the others are zero, which is the worst case, the delay of 510 is that one N transistor discharge the drain parasitic capacitance of the eight same size N transistor down to ground plus the delay of one inverter.

The binary encoding logic and circuit is shown as embodiment 600 in FIG. 6. The operation principle of 600 is: 1) all the input h.sub.0, h.sub.2, h.sub.4 and h.sub.6 are set zero. 2) Set the gate input 611 of P transistor 601 to zero to pre-charge the node 603 to Vdd, then turn 611 to Vdd and turn off the P transistor 601 before the signal h.sub.0, h.sub.2, h.sub.4 and h.sub.6 arrive. If all the input signal h.sub.0, h.sub.2, h.sub.4 and h.sub.6 are zero, the input of N transistors are zero and all the N transistors 602 are OFF and the node 603 is kept in Vdd and the output signal of inverter 604 is zero.

If only one input among h.sub.0, h.sub.2, h.sub.4 and h.sub.6 is Vdd and all the others are zero, which is the worst case, the delay of 600 is that one N transistor discharging the drain parasitic capacitance of the four same size N transistor down to ground plus the delay of one inverter.

The MUX logic and circuit is shown in FIG. 7 as embodiment 700. The operation principle of 700 is: 1) the input signal Ph.sub.0, Ph.sub.1, Ph.sub.2, Ph.sub.3, Ph.sub.4, Ph.sub.5, Ph.sub.6 and Ph.sub.7 are set zero. 2) Set the gate input 705 of P transistor 701 to zero to pre-charge the node 703 to Vdd, then turn 705 to Vdd and turn off the P transistor 701 before the signal Ph.sub.0, Ph.sub.1, Ph.sub.2, Ph.sub.3, Ph.sub.4, Ph.sub.5, Ph.sub.6 and P.sub.7 arrive. Since Ph.sub.0, Ph.sub.1, Ph.sub.2, Ph.sub.3, Ph.sub.4, Ph.sub.5, Ph.sub.6 and Ph.sub.7 are from Priority encoding, only one signal among them is Vdd and all the other are zero if there is hit. After AND logic, only one output of the seven AND gate 708 is equal to the input value which is the selected bit from Ba.sub.0 to Ba.sub.7. If the selected bit from Ba.sub.0 to Ba.sub.7 is zero, the node 703 is kept Vdd and the output of inverter 704 is zero and the selected bit value zero is passed out. If the selected bit from Ba.sub.0 to Ba.sub.7 is Vdd, one N transistor among eight N transistor 702 is turned ON and the node 703 is discharged down to ground and the output of inverter 704 is Vdd(logical one) and the selected bit value Vdd is passed out, which is the worst case, the delay of 700 is one N transistor discharging the drain parasitic capacitance of the eight same size N transistor

down to ground plus the delay of one inverter and one AND gate. Usually one AND gate includes one inverter and one NAND gate, so the delay of 700 is one N transistor discharging the drain parasitic capacitance of the eight same size N transistor down to the ground plus the delay of two inverter and one NAND gate.

The entire Priority encoding logic and circuit are simplified as a four basic building block of 400, 510, 600 and 700 in FIGS. 4, 5, 6 and 7. The delay of each block 400, 510, 600 and 700 are comparable and we call the time of delay of each block 400, 510, 600 and 700 one stage. If we define the delay of hit logic block 510 as T.sub.h, one inverter delay is T.sub.i and one NAND gate delay is T.sub.n. The delay of priority encoding block 400 is (T.sub.h+T.sub.n) since the delay of block 400 is one more NAND gate delay comparing with block 510. The delay of block 600 is roughly T.sub.h. The delay of MUX block 700 is (T.sub.h+T.sub.n+T.sub.i). The extra delay of each higher level priority encoding is a MUX 700 selection delay because that the Hit signal in each priority encoding level is generated one stage earlier than the binary hit address and the selection signal of the MUX is already available when the binary address to be selected arrive and will not suffer extra delay.

The previous description of the disclosed embodiments is provided to enable any person skilled in the art to make or use the present invention. Various modifications to these

embodiments will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other embodiments without departing from the spirit or scope of the invention. Thus, the present invention is not intended to be limited to the embodiments shown herein but is to be accorded the widest scope consistent with the principles and novel features disclosed herein.

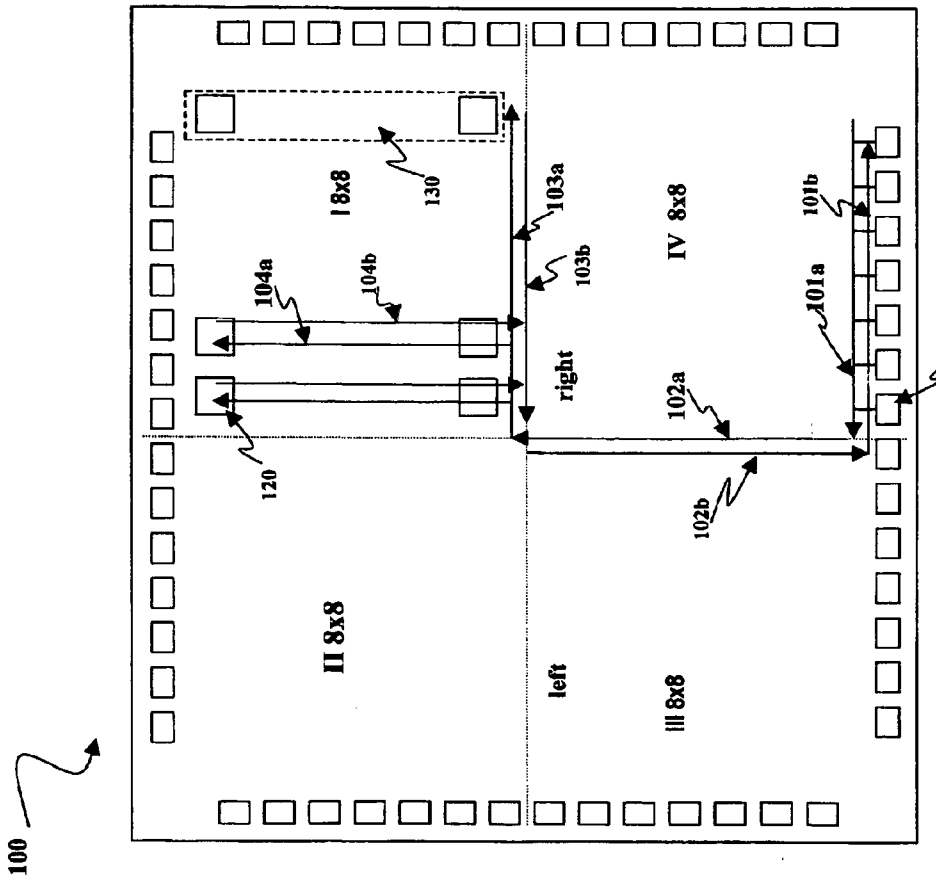

I 8x8
130
103a
IV 8x8
101b
104a
104b
103b
101a
110
right
102a
120
102b
II 8x8
left
III 8x8
100

Fig.1

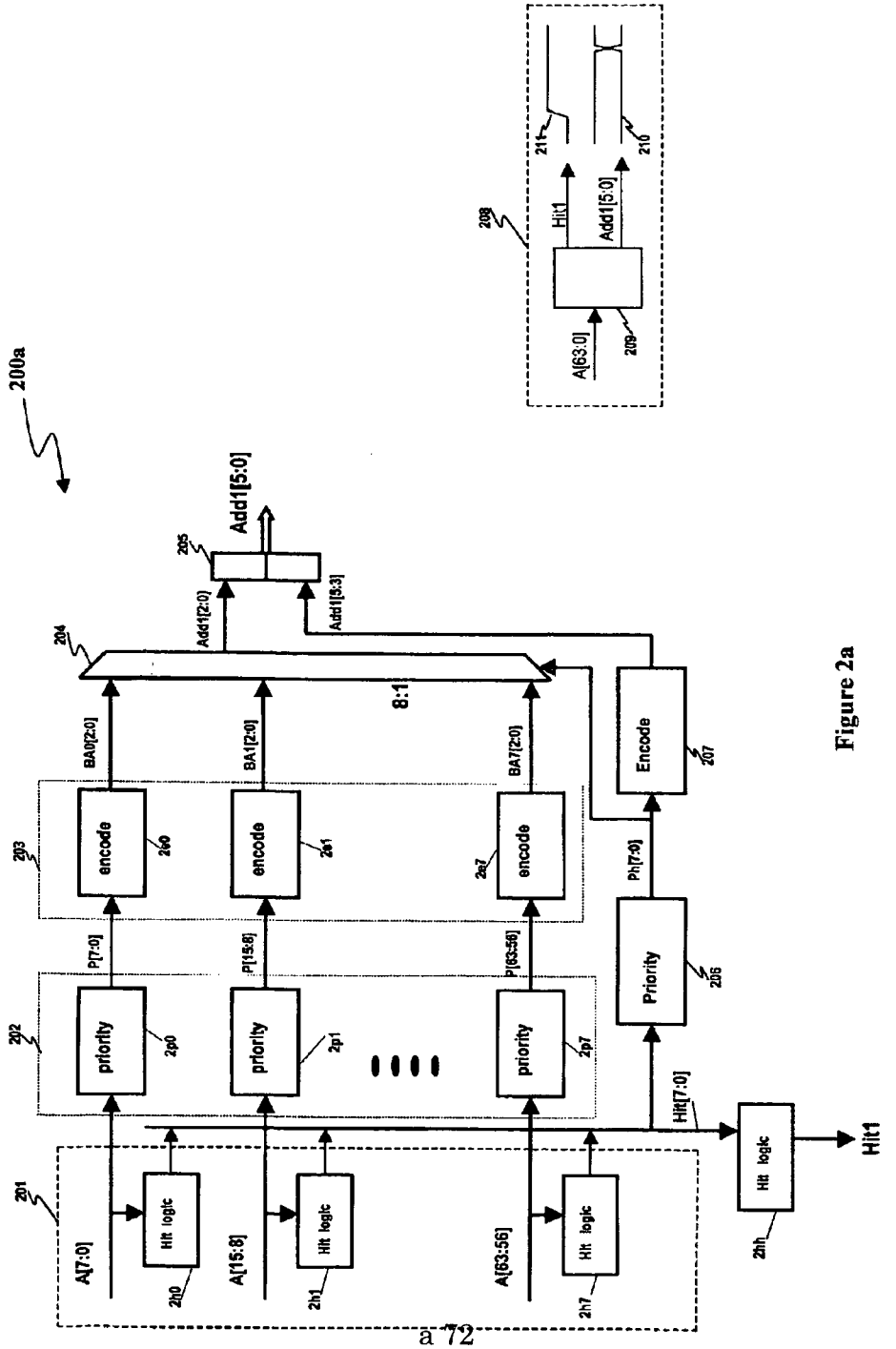

200a
Add1[5:0]
205
Add1[2:0]
Add1[5:3]
204
8:1
BA0[2:0]
BA1[2:0]
BA7[2:0]
203
encode
2e0
encode
2e1
encode
2e7
P[7:0]
P[15:8]
P[63:56]
202
priority
2p0
priority
2p1
priority
2p7
Encode
207
Pri[7:0]
Priority
206
Hit[7:0]
Hit logic
2hh
Hit1
201
A[7:0]
Hit logic
2h0
A[15:8]
Hit logic
2h1
A[63:56]
Hit logic
2h7
208
Hit1
Add1[5:0]
211
210
A[63:0]
209

Figure 2a

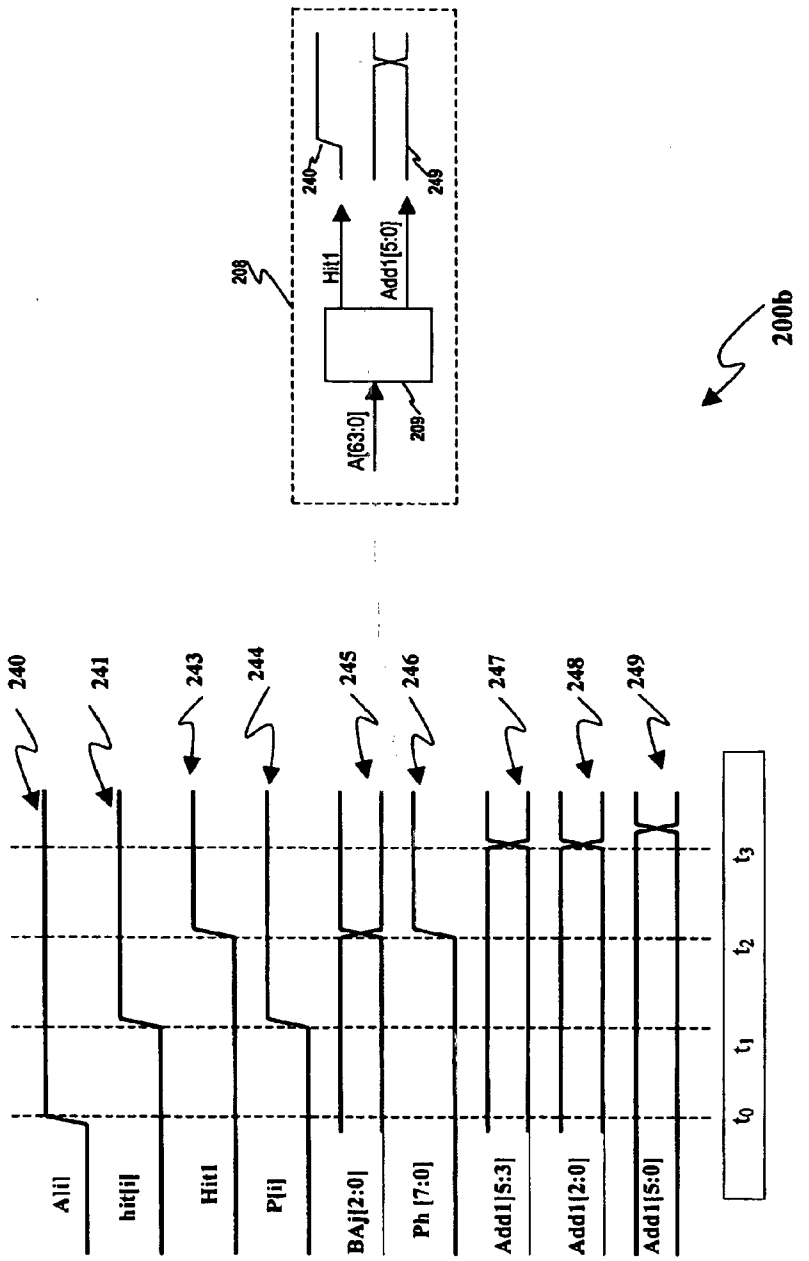

200b
208
Hit1
Add1[5:0]
240
249
A[63:0]
209
240
241
243
244
245
246
247
248
249
Ali]
hit[i]
Hit1
P[i]
BAj[2:0]
Ph [7:0]
Add1[5:3]
Add1[2:0]
Add1[5:0]
t0
t1
t2
t3

Figure 2b.

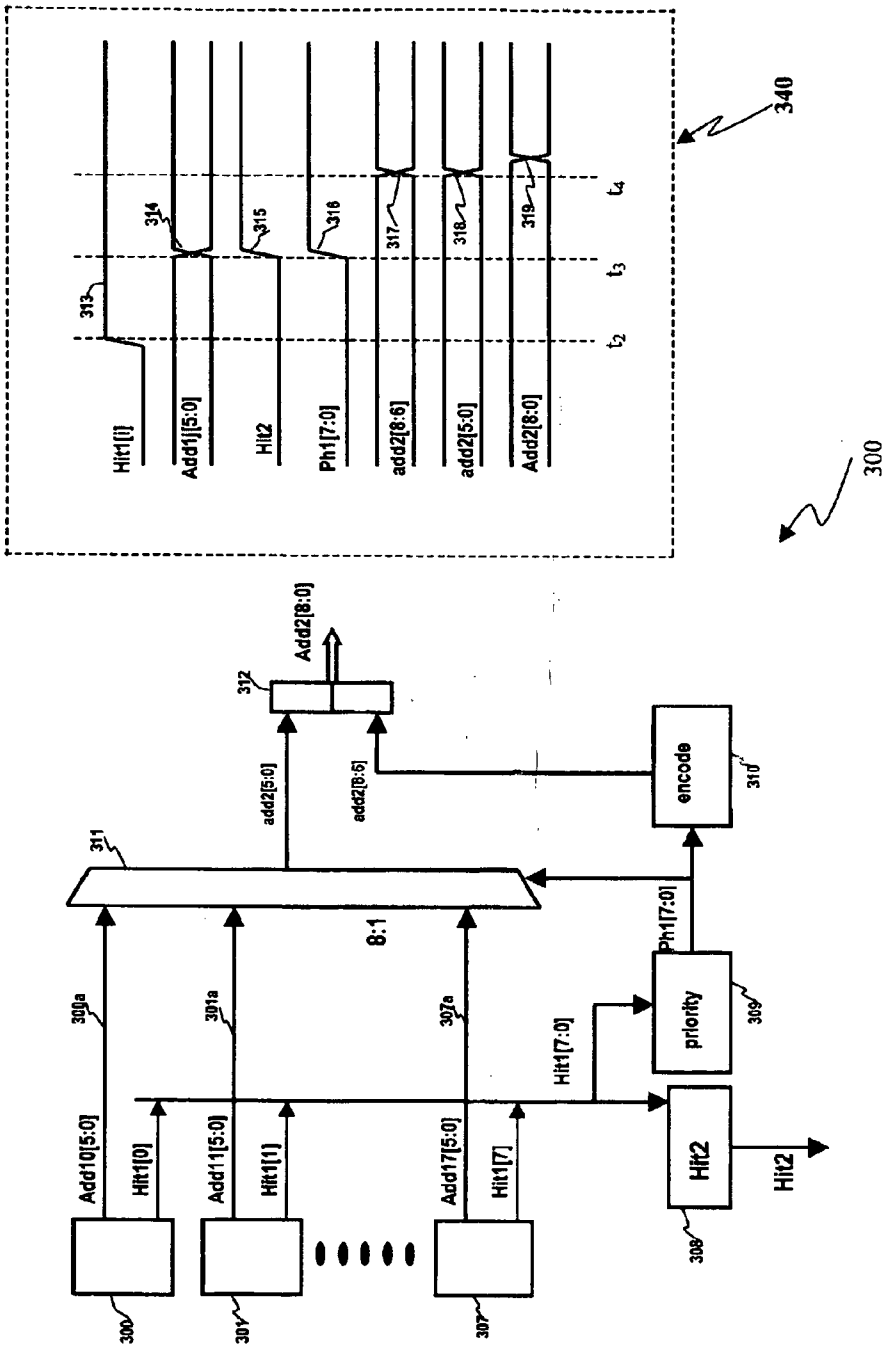

340
300
t4
t3
t2
313
314
315
316
317
318
319
Hit1[i]
Add1i[5:0]
Hit2
Ph1[7:0]
add2[8:6]
add2[5:0]
Add2[8:0]
Add2[8:0]
312
add2[5:0]
add2[8:6]
encode
310
311
8:1
Ph1[7:0]
priority
309
Hit1[7:0]
Hit2
Hit2
308
Add10[5:0]
Hit1[0]
Add11[5:0]
Hit1[1]
Add17[5:0]
Hit1[7]
309a
391a
307a
300
301
307

Figure 3

a 74

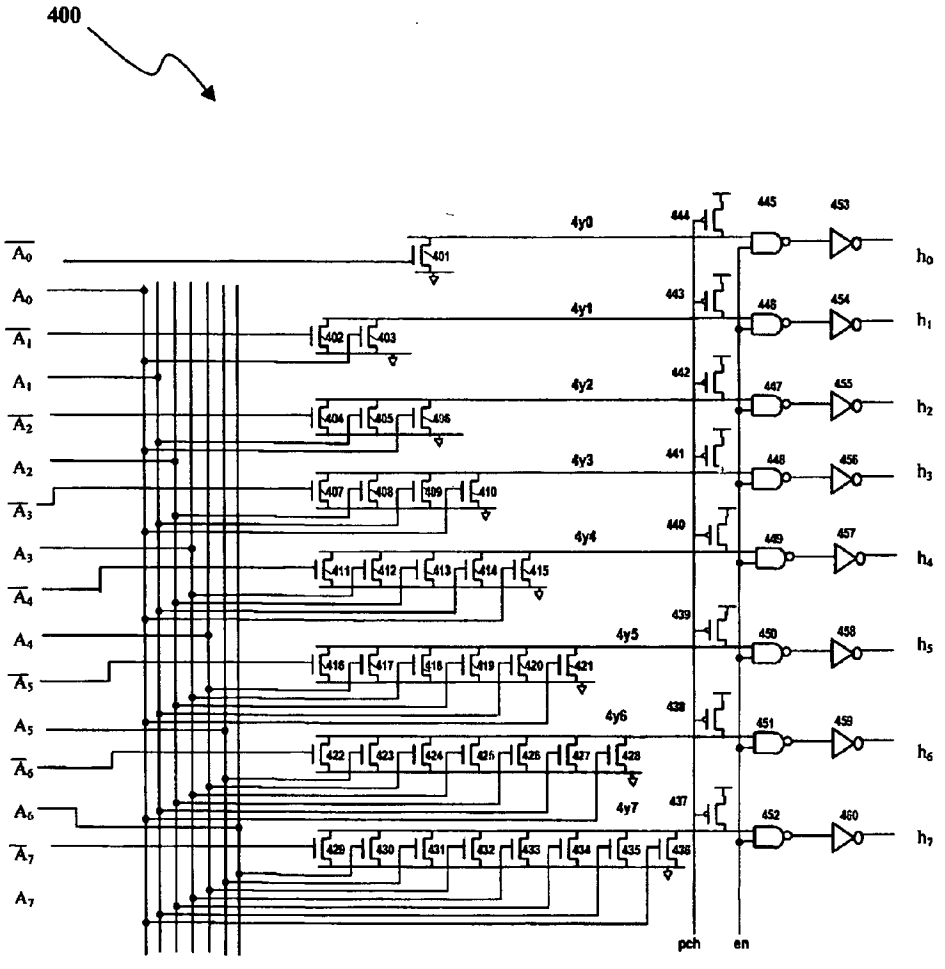


Figure 4

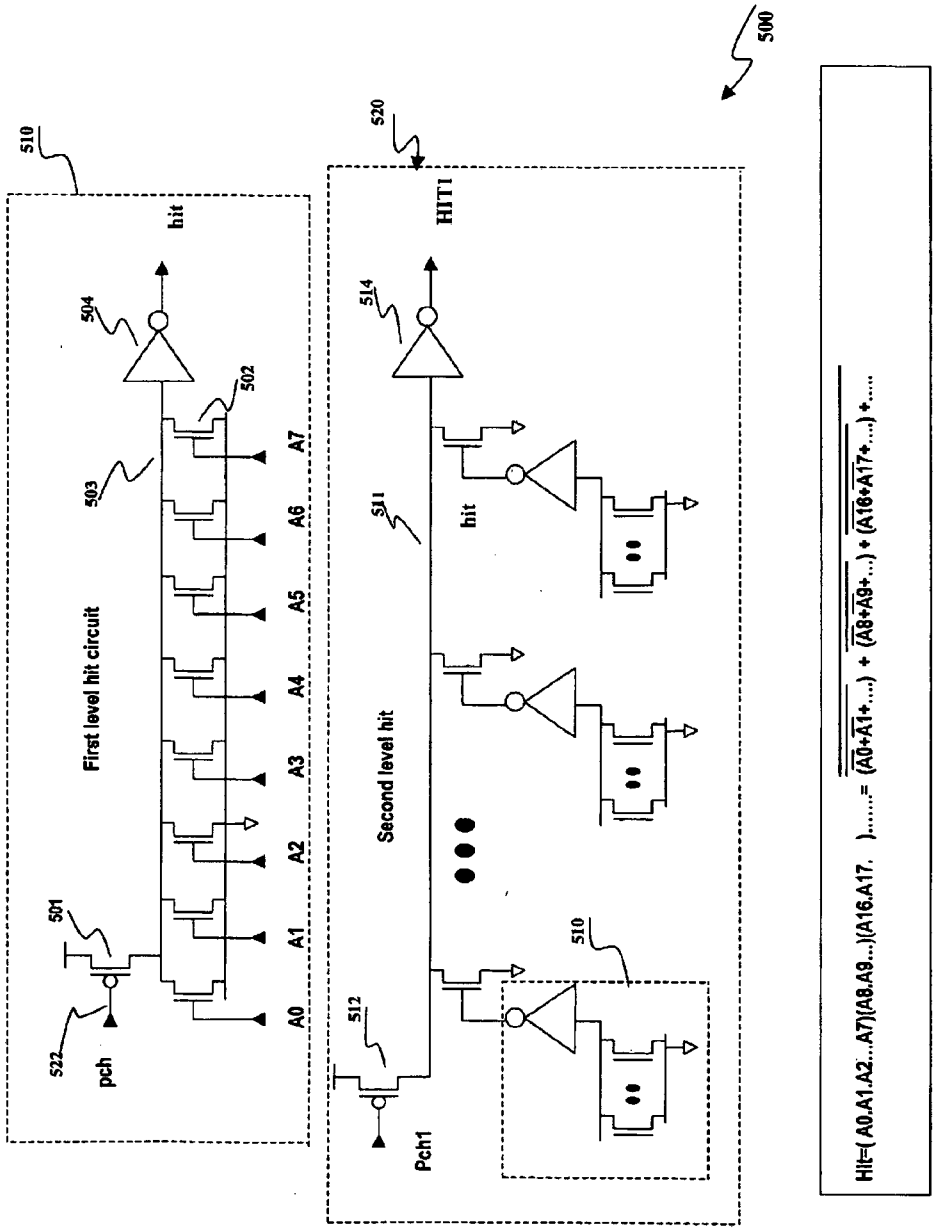
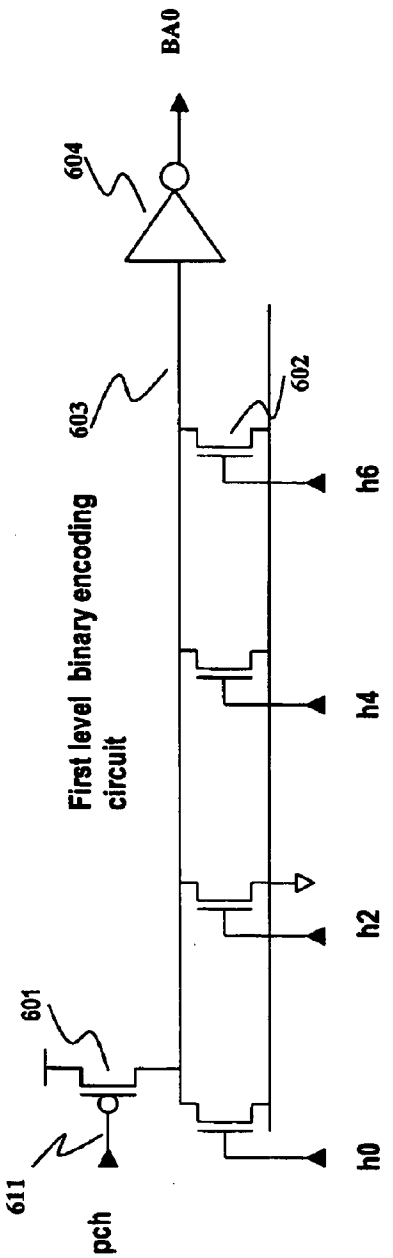

500
510
520
hit
HIT1
504
514
502
503
511
A7
A6
A5
A4
A3
A2
A1
A0
First level hit circuit
Second level hit
hit
501
510
512
522
pch
Pch1
Hit=(A0.A1.A2...A7)(A8.A9...)(A16.A17.)..... = (A0+A1+....) + (A8+A9+...) + (A16+A17+....) +....

Figure 5


BA0
604
603
602
h6
h4
h2
h0
First level binary encoding circuit
601
611
pch

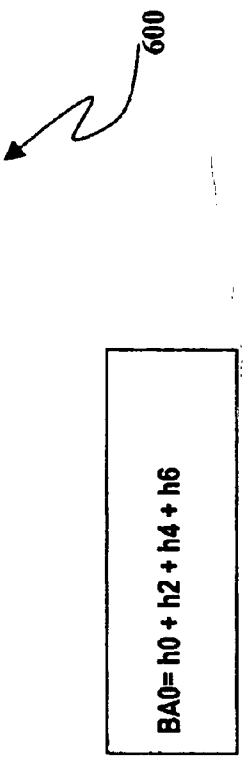

600
BA0= h0 + h2 + h4 + h6

Figure 6

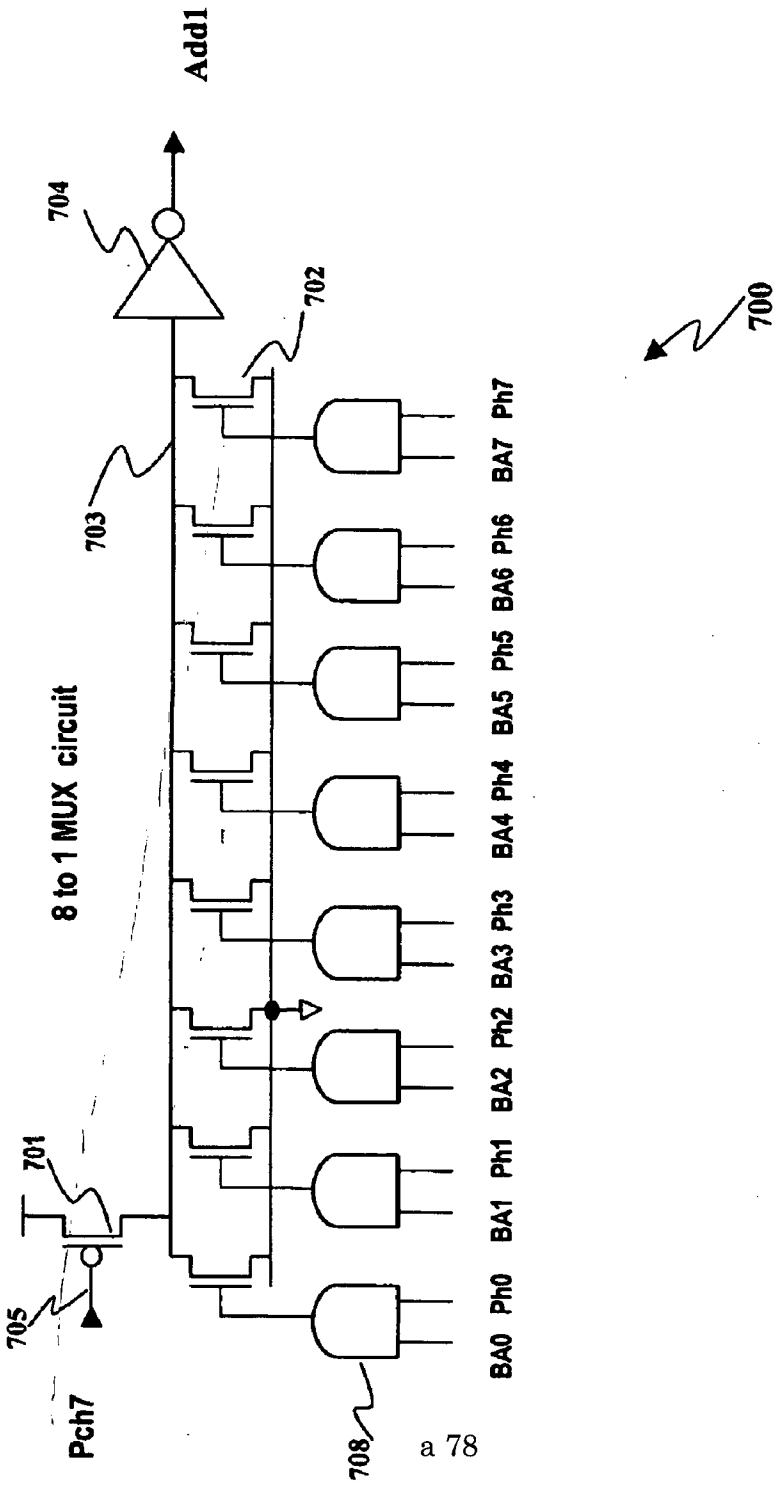

Add1
704
702
703
700
8 to 1 MUX circuit
701
705
Pch7
708
a 78
BA0 Ph0 BA1 Ph1 BA2 Ph2 BA3 Ph3 BA4 Ph4 BA5 Ph5 BA6 Ph6 BA7 Ph7

Figure 7

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

DECLARATION OF XIAOHUA HUANG

I, Xuaihua Huang, declare as follows:

1. My name is Xiaohua Huang.

2. I have personal knowledge of the facts set forth in this Declaration nd if called to testify as a witness, I could and would competently testify to them under oath.

3 The following files are true copy as original sent to Defendant Huawei as 3-1 and 3-2 Discovery and Infringement contention file on November, 2015

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

PLAINTIFF XIAOHUA HUANG'S DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS AGAINST DEFANDENT HUAWEI TECHNOLOGY LTD

3-1. Disclosure of Asserted Claims and Infringement Contentions

(a) Each claims of each patent in suit that is allegedly infringed by each opposing party.

3.1-a-1. Claim 1 of Patent RE45259, claim 2 of Patent RE45259, claim 3 of PatenRE45259, claim 6 of Patent RE45259, The claim 7 of Patent RE45259, claim 8 of Patent RE45259, claim 9 of Patent RE45259, claim12 of Patent RE45259, claim 13 of Patent RE45259, claim 14 of Patent RE45259, claim 15 of Patent RE45259, claim 16 of Patent RE45259, claim 17 of Patent RE45259, claim 18 of Patent RE45259, claim 19 of Patent RE45259, claim 20 of Patent RE45259, claim 21 of Patent RE45259, claim 22 of Patent RE45259, claim 23 of Patent RE45259, claim 24 of Patent

RE45259, claim 25 of Patent RE45259, claim 26 of Patent RE45259, claim 27 of Patent RE45259, claim 28 of Patent RE45259,claim 29 of Patent RE45259 and claim 36 of Patent RE45259 are infringed by Huawei's products.

3.1-a-2. Claim 1 of Patent 6744653, claim2 of Patent 6744653, claim 3 of Patent 6744653, claim4 of Patent 6744653, claim5 of Patent 6744653, claim6 of Patent 6744653, claim 7 of Patent 6744653, claim8 of Patent 6744653, claim9 of Patent 6744653, claim10 of Patent 6744653, claim 11 of Patent 6744653, claim12 of Patent 6744653 , claim 15 of Patent 6744653 and claim17 of Patent 6744653 are infringed Huawei's products.

3.1-a-3. Claim 1 of Patent 6999331, claim 2 of Patent 6999331, claim 3 of Patent 6999331, claim 4 of Patent 699933, claim 5 of Patent 6999331, claim 6 of Patent 6999331, claim 7 of Patent 6999331, claim 8 of Patent 699933 and claim 9 of Patent 699933 are infringed by Huawei's products.

(b) Separately for each asserted claim, each accused apparatus, product, device, process, method, act, or other instrumentality ("Accused Instrumentality") of each opposing party of which the party is aware.

3.1-b-1 Claim 1 of Patent RE45259, claim 2 of Patent RE45259, claim 3 of Patent RE45259, claim 6 of Patent RE45259, The claim 7 of Patent RE45259, claim 8 of Patent RE45259, claim 9 of Patent RE45259, claim12 of Patent RE45259,

claim 13 of Patent RE45259, claim 14 of Patent RE45259, claim 15 of Patent RE45259, claim 16 of Patent RE45259, claim 17 of Patent RE45259, claim 18 of Patent RE45259, claim 19 of Patent RE45259, claim 20 of Patent RE45259, claim 21 of Patent RE45259, claim 22 of Patent RE45259, claim 23 of Patent RE45259, claim 24 of Patent RE45259, claim 25 of Patent RE45259, claim 26 of Patent RE45259, claim 27 of Patent RE45259, claim 28 of Patent RE45259,claim 29 of Patent RE45259 and claim 36 of Patent RE45259 are infringed by the TCAM chips of Integrated Device Technology Inc(IDT)(acquired by Netlogic Micrsystems Inc in 2009) and the TCAM chips of Netlogic Microsystems Inc(NL)(acquired by Broadcom Corporation in 2011), the chips are coded as Knowledge Based Processor (KBP). The chips infringing the above claims includes (not limited) IDT75K72234, IDT75S10020, IDT75S10010 and NL9512("KBP sample chips "). The infringement is from 2008 to now. During the same time Huawei Technology ltd have been using the TCAM chips of Integrated Device Technology Inc, Netlogic Microsystems Inc and Broadcom Corporation in Huawei's products for the solution of IP/Carrier Ethernet, Networking & Security, Cloud Computing & Data Centers. The sample of those products are:

1. High end Universal Service Router: NE40E-X16A, NE40E-X8A;
2. Series Universal Service Router NE40E-

X1/X2-M ;

3. S9300 Series Terabit Routing Switches;
4. S6300 Switches;
5. S9700 Series Terabit Routing Switches;
6. CloudEngine 12800 SeriesData Center Core Switches;
7. S12700 Series Agile Switches.

the above products use "KBP sample chips ", so the claims reading "KBP sample chips "also read those products.

3.1-b-2 Claim 1 of Patent 6744653, claim2 of Patent 6744653, claim 3 of Patent 6744653, claim4 of Patent 6744653, claim5 of Patent 6744653, claim6 of Patent 6744653, claim 7 of Patent 6744653, claim8 of Patent 6744653, claim9 of Patent 6744653, claim10 of Patent 6744653, claim 11 of Patent 6744653, claim12 of Patent 6744653 , claim 15 of Patent 6744653 , claim17 of Patent 6744653, claim 1 of Patent 6999331, claim 2 of Patent 6999331, claim 3 of Patent 6999331, claim 4 of Patent 699933, claim 5 of Patent 6999331, claim 6 of Patent 6999331, claim 7 of Patent 6999331, claim 8 of Patent 699933, claim 9 of Patent 699933,claim1 of Patent RE45259, claim 13 of Patent RE45259 and claim 29 of Patent RE 45259are infringed by the TCAM IP of Silicon Design Solution Inc(SDS), SDS was acquired by eSilicon Corporation, in 2011 Huawei Technology ltd licensed TCAM IP from eSilicon Corporation, and since then applied the TCAM IP in Huawei's products for the solution of IP/Carrier Ethernet,

Networking & Security, Cloud Computing & Data Centers. The sample of those products are:

1. High end Universal Service Router: NE40E-X16A, NE40E-X8A; 2. Series Universal Service Router NE40E-X1/X2-M ;

3. S9300 Series Terabit Routing Switches;

4. S6300 Switches;

5. S9700 Series Terabit Routing Switches;

6. CloudEngine 12800 SeriesData Center Core Switches;

7. S12700 Series Agile Switches. the above products use the TCAM IP licensed from eSlilicon Corporation, so the claims reading the TCAM IP of eSlilicon Corporation, also read those products.

(c) A chart identifying specifically where each element of each asserted claim is found

3.1-c-1. Claim chart of U.S. patent RE45259 against the TCAM chips of Integrated Device Technology Inc(IDT)(acquired by Netlogic Micrsystems Inc in 2009) and the TCAM chips of Netlogic Microsystems Inc(NL)(acquired by Broadcom Corporation in 2011), the chips are coded as Knowledge Based Processor (KBP). Here are the "KBP sample chips" (including IDT75K72234, IDT75S10020, IDT75S10010 and NL9512). Through reverse engineering of "KBP sample chips " (including IDT75K72234, IDT75S10020, IDT75S10010 and NL9512 etc.) the designs of the "KBP sample chips" were

extracted .

Huawei Technology ltd have been using the TCAM chips of Integrated Device Technology Inc, Netlogic Microsystems Inc and Broadcom Corporation in the products for the solution of IP/Carrier Ethernet, Networking & Security, Cloud Computing & Data Centers. The sample of those products are:

1. High end Universal Service Router: NE40E-X16A, NE40E-X8A;
2. 2. Series Universal Service Router NE40E-X1/X2-M ;
3. S9300 Series Terabit Routing Switches;
4. S6300 Switches;
5. S9700 Series Terabit Routing Switches;
6. Cloud Engine 12800 Series Data Center Core Switches;
7. S12700 Series Agile Switches.

the above products use"KBP sample chips ", so the claims reading "KBP sample chips "also read those products.

U.S. Patent RE45259 claim the priority date of U.S. patent 7652903 which was granted in January 26,2010, and U.S. patent 7652903 claim the priority date of provisional application No. 60/550,537 which is filed on March 4,2004.

Claim Element	Accused Instrumentality

	the "KBP sample chips" (includingIDT75K72234, IDT75S10020, IDT75S10010 and NL9512)
1. A content address able memory(CAM) and hit ahead priority encoding(HAPE) logic, comprising:	This is a preamble
(1)a group of blocks which is arranged in column and row, each block has equal number of CAM match signals which are the input signals of priority encoding logic,	From the reverse engineering of "KBP sample chips ", the "KBP sample chips" are designed same as the element (1) of claims. see the picture in page 3 and page 4 of " Reverse-engineering drawing description". This element of the claim read KBP sample chips".
(2) each block has same priority encoding logic of CAM match signals within the block,	From the reverse engineering of "KBP sample chips " as shown in page 5, 6 and page 17 Fig.5 of "Reverse-engineering drawing

	description" , the "KBP sample chips " are designed same as the element(2) of claims. This element of the claim read KBP sample chips".
(3)the CAM match signals or input signals are arranged from lower priority to higher priority or from higher priority to lower priority, each CAM match signals or input signal has either high logic level "one" which is called hit or low logic level "zero" which is called miss,	This is the definition of priority encoding. The "KBP sample chips " are designed same as the element(3) of claims. This element of the claim read any priority encoding logic and read "KBP sample chips".
(4) , each block generates block hit when there is at least one CAM match signal is high logic "one"	From the reverse engineering of "KBP sample chips ", the "KBP sample chips" are designed same as the element(4) of claims as

within the block or block miss signal when all the CAM match signals are in low logic level "zero" within the block and block binary address signal corresponding to the CAM match signals of highest priority within the block,	shown in page 12, FIG.2 of "Reverse-engineering drawing description". This element of the claim read "KBP sample chips".
(5) a priority encoding logic of block hit or miss signals of each column,	From the reverse engineering of "KBP sample chips", the "KBP sample chips" are designed same as the element (5) of claims. This element of the claim read "KBP sample chips".
(6)each column generates a column hit signal when there is at least one block hit signal within the column or column miss signal when	From the reverse engineering of "KBP sample chips", the "KBP sample chips" are designed same as the element (6) of claims. This element of the claim read "KBP sample

there is only block miss signals within the column and column binary address corresponding to the CAM match signals of highest priority within the column,	chips".
(7) a priority encoding logic of column hit or miss signals of a group column, a group of column generates a hit signal when there is at least one column hit signal within the group column or a miss signal when there is only column miss signals within the group column and a group column binary address	From the reverse engineering of "KBP sample chips", "KBP sample chips" are designed same as the element (7) of claims as shown in " Reverse-engineering drawing description". This element of the claim read "KBP sample chips".

corresponding to the CAM match signals of highest priority within the group column.	
2. A content address able memory(CAM) and hit ahead priority encoding(HAPE) logic of claim 1, further comprising:	This is a preamble
(1)a block multiplexer to select the binary address from the block of highest priority hit within the column as less significant portion of the column binary address;	From the reverse engineering of "KBP sample chips" the "KBP sample chips" are designed same as the element(1) of the claim 2 as shown in page 6 of "Reverse-engineering drawing description". This element of the claim read "KBP sample chips".
(1)a block multiplexer to select the binary	From the reverse engineering of "KBP sample chips" the "KBP

address from the block of highest priority hit within the column as less significant portion of the column binary address;	sample chips" are designed same as the element(1) of the claim 2 as shown in page 6 of "Reverse-engineering drawing description". This element of the claim read "KBP sample chips".
(2)and a priority encoding logic of block hit signals to generate the block multiplexer control signal which select the block of highest priority hit within the column,	From the reverse engineering of "KBP sample chips" the "KBP sample chips" are designed same as the element(2) of claim 2. This element of the claim read "KBP sample chips".
(3)and a binary address encoding logic of block hit signals to generate the more significant portion of the column highest priority binary address.	From the reverse engineering of "KBP sample chips" the "KBP sample chips" are designed same as the element (3) of the claim 2. This element of the claim read "KBP sample chips".

3. A content address able memory(CAM) and hit ahead priority encoding(HAPE) logic of claim 1, wherein each block comprises:	This is a preamble
a group of sub-blocks, each sub-block has equal number of input signals,	From the reverse engineering of "KBP sample chips", the "KBP sample chips" are designed same as the element of the claim 3. This element of the claim read "KBP sample chips".
each sub-block has priority encoding and binary address encoding logic to generate sub-block highest priority binary address memory (CAM) system, comprising:	From the reverse engineering of "KBP sample chips", the "KBP sample chips" is designed " doctrine equivalent" to the element of the claim. This element of the claim read "KBP sample chips".
1) a circuit segment	From the reverse engineering of "KBP

configured to generate a circuit segment output based on whether at least one of a plurality of circuit segment inputs received by the circuit segment corresponds to a first logic level,	sample chips", "KBP sample chips" is designed same as the element(1) of claim 29 as shown in FIG2 and FIG.5 of "Reverse-engineering drawing description" This element of the claim read "KBP sample chips".
(2) the circuit segment configured to set a node to a second logic level in response to an input signal, and to subsequently change the node to a third logic level in response to the plurality of circuit segment inputs, the circuit segment output corresponding to said third logic level.	From the reverse engineering of "KBP sample chips", "KBP sample chips" is designed same as the element (2) of the claim as shown in FIG2 and FIG.5 of "Reverse-engineering drawing description" This element of the claim read "KBP sample chips".

Iadd 30-Iadd36 is the dependent claims of Iadd 29	

3.1-c-2. Claim chart of U.S. patent 6744653 against the TCAM IP described by "eFlexCAM" which is a product brochure of eSilicon Corporation (Silicon design solution inc. was acquired by eSilicon Corporation),then Huawei licensed the TCAM IP from eSilicon Corporation and used in Huawei's products for the solution of IP/Carrier Ethernet, Networking & Security, Cloud Computing & Data Centers. The sample of those products are:

1. High end Universal Service Router: NE40E-X16A, NE40E-X8A;
2. Series Universal Service Router NE40E-X1/X2-M ;
3. S9300 Series Terabit Routing Switches;
4. S6300 Switches;
5. S9700 Series Terabit Routing Switches;
6. Cloud Engine 12800 Series Data Center Core Switches;
7. S12700 Series Agile Switches.

the above products used the TCAM IP of "eFlexCAM", so the claims reading "eFlexCAM" also read those products.

U.S. Patent 6744653 claim the priority date of provisional application No.60/327,049 which is filed on October 4, 2001.

Claim Element	Accused Instrumentality TCAMIP of "eFlexCAM"
a memory cell operable to store a bit value; and a comparison circuit coupled to the memory cell and configured to detect the bit value stored in the memory cell, the comparison circuit including an output transistor coupled to a match line and configured to provide a drive for the match line based on the detected bit value, and a dummy transistor coupled to a dummy line and configured to provide a drive for the dummy line based on an inverted detected bit value,	This element of claim describe Fig.2F of patent 6744653,' which is the dummy CAM cell supporting the differential sensing of match(Hit)line and dummy lines , in another word to use differential sense amplifier on match(Hit) line, match line and dummy line have to be used. In the same time this claim also describe Fig.2F of patent 6744653, which perform the function of "Valid bit", for example, it can be programmed when the bit stored in

	this cell is 1, it is valid, when the bit stored in this cell is zero, it is invalid. Valid also means the transistor coupled match line not conducting current and the transistor coupled to dummy line conducting current while the Invalid case is on the opposite. so this element of claim read the yellow highlight of "eFlexCAM". "Valid bit" and "A low power version of eFlexCAM employs a differential sense amplifier to reduce voltage swing of the Hitline". Any modifications to this should be deemed as Doctrine equivalent. This element of the claim read "KBP

	sample chips".
, wherein the match line and dummy line are used to detect output values provided by other CAM cells also coupled to the match and dummy lines.	This part of claim describe Fig.1.B of patent 6744653, which read the yellow highlight part "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." of "eFlexCAM", match line and dummy line support differential sense amplifier, differential sense amplifier is used to sense differential match(hit) line and dummy line. This element of the claim read "KBP sample chips".
2. The CAM cell of	This claim

claim 1, wherein the comparison circuit further includes a first pair of transistors configured to receive the detected bit value and provide a drive for the output transistor, and a second pair of transistors configured to receive the inverted detected bit value and provide a drive for the dummy transistor.	further describe that how the dummy CAM cell which also perform the "Valid bit" function works. This cell is supporting both "Valid bit" and differential match(Hit) line sensing of using a differential sense amplifier. This claim read the "valid bit" and "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." of "eFlexCAM", This claim read "KBP sample chips".
3. The CAM cell of claim 1, wherein the dummy transistor	This claim further describe how "Valid bit" cell and

has a smaller dimension and less current flowing through than the output transistor and is located in close proximity to the output transistor.	differential match(Hit) line and dummy line works. This claim read "KBP sample chips".
4. The CAM cell of claim 3, wherein the dummy transistor is approximately half the dimension of the output transistor and is turned ON during sensing operation.	This claim describe when "Valid bit" cell is set as valid to support differential sensing of match(Hit) line and dummy line. This claim read "KBP sample chips".
5. A content addressable memory (CAM) cell comprising:	This is a preamble.
a memory cell operable to store a data bit value; a secondary cell operable to store a control bit value and a complementary control bit value; and a comparison circuit	This part of the claim describe Fig. 8B of patent 6744653, which is a differential Ternary CAM cell, to use a differential sense amplifier on match(Hit)line of a Ternary CAM,

coupled to the memory cell and the secondary cell and 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.	differential Ternary

3.1-c-3. Claim chart of U.S. patent 6999331 against the TCAM IP described by "eFlexCAM" which is a product brochure of eSilicon Corporation (Silicon design solution inc. was acquired by eSilicon Corporation),then Huawei licensed the TCAM IP from eSilicon Corporation and used in Huawei's products for the solution of IP/Carrier Ethernet, Networking & Security, Cloud Computing & Data Centers. The sample of those products are:

1. High end Universal Service Router: NE40E-X16A, NE40E-X8A;

2. Series Universal Service Router NE40E-X1/X2-M ;

3. S9300 Series Terabit Routing Switches;

4. S6300 Switches;

5. S9700 Series Terabit Routing Switches;

6. Cloud Engine 12800 Series Data Center Core Switches;

7. S12700 Series Agile Switches.

the above products used the TCAM IP of "eFlexCAM", so the claims reading "eFlexCAM" also read those products. U.S. Patent 6999331 is the continuation of U.S. patent 6744653.

Claim Element	Accused Instrumentality TCAM IP of "eFlexCAM"
1. A ternary content addressable memory (TCAM) comprising:	This is a preamble.
(1) an array of TCAM cells arranged in a plurality of rows and a plurality of columns; 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	(1) This element of claim describe Fig.1.B in U.S. patent 6999331, which is the basic structure of CAM, Ternary CAM to use differential sense amplifier to sense MATCH(HIT) line, it also cover "Valid bit" function. which read the yellow highlight

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;	part "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." and "valid bit", "local valid bit" in "eFlexCAM" data sheet. match line and dummy line support differential sense amplifier, differential sense amplifier is used to sense differential match(hit) line and dummy line.
(2) 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	2) This is standard function for CAM. it read any CAM design including "eFlexCAM"

content stored in each TCAM cell of that column;	
(3) 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;	(3) This is a must functional operation for using differential sense amplifier on match(hit)line. It also cover "valid bit", it read both "valid bit" and "A low power version of eFlexCAM employs a differential sense amplifier to reduce voltage swing of the Hitline" of eFlexCAM
(4) a sense amplifier connected to the match line and the dummy line in each row;	(4) This is the only way so far for differential sense amplifier application to CAM match(hit) line. It read "A low power version of eFlexCAM employs a differential sense amplifier to reduce voltage swing of the Hitline" of eFlexCAM

(5) and current sources connected to each of the match line and the dummy line in each row.	(5) this element of claim is showing in Fig.9A,Fig.9B and Fig.10. of patent 6999331, which is also a basic implementation to use a differential sense amplifier to CAM match(hit) line. It read "A low power version of eFlexCAM employs a differential sense amplifier to reduce voltage swing of the Hitline" of eFlexCAM
2. The TCAM of claim 1, herein each TCAM cell comprises: a memory the corresponding match bit lines and their complements to compare with the content stored in the corresponding TCAM cells; sending a dummy match data and its complement to the DTCAM cell through the dummy match data	This claim describe Fig.8B of U.S. Patent 6999331, It is a

bit line and its complement to compare with the content stored in the DTCAM cell; enabling the current sources to establish conducting paths from Vdd to the match line and the dummy line and pull the potential of the match line and the dummy line to a level less than half Vdd; disabling the current sources to shut off the conducting paths from Vdd to the match line and the dummy line; and enabling the sense amplifier to sense the voltage difference between the match line and the dummy line and determine the match or the mismatch state, finishing one comparison cycle.	

Attached file:

1. "Reverse-engineering drawing description"
2. "eFlexCAM"

3-2. (a) Documents (e.g., contracts, purchase orders, invoices, advertisements, marketing materials, offer letters, beta site testing agreements, and third party or joint development agreements) sufficient to evidence each discussion with, disclosure to, or other manner of providing to a third party, or sale of or offer to sell, the claimed invention prior to the date of application for the patent in suit. A party's production of a document as required herein shall not constitute an admission that such document evidences or is prior art under 35 U.S.C. ' 102;

3-2(a)---1. Internet news release on TCAM of CMOS Micro Device Inc.


CMOS Micro Device ann...

www.design-reuse.com/news/4167/cmos-micro-device-breakthrough-p

About DSR | DSR Enterprise Platform | dr-embedded.com | Login

Design & Reuse

mixel Mixed-Signal Excellence

Silicon Proven Mixed-Signal ... Receivers / SerDes / PHY

SEARCH IP | NEWS | INDUSTRY ARTICLES | BLOGS | VIDEOS | SLIDES | EVENTS | Search News

CMOS Micro Device announces a breakthrough in low power high density CAM technology

CAMPBELL, Calif. -- October 22, 2002 -- CMOS Micro Device, Inc. (CMD), a leading developer of high speed, low power Ternary Content Addressable Memory (TCAM) technology, today announced availability of a preliminary design for its new 18-megabit density, low power consumption, 250 million search per second CMD250HDLP Full Ternary CAM.

The CMD250HDLP design uses conventional CMOS logic process, and a proprietary design techniquo. The new 18-megabit TCAM accommodates the requirements of major router providers for their next generation products.

When operating at 250 million searches per second for the full chip searching:

- Peak power consumption is below 5 watts.
- Normal operating power is approximately 2.5 watts.

Share G+1 0 Tweet

Like Share 0

SEARCH SILICON IP

12,000 IP Cores from 400 Vendors

Enter Keywords....

RELATED NEWS

- Crossbar Unveils Another Breakthrough

3-2(a)---2. Cisco email about the patent-in-suit

Date: Tue, 1 Oct 2002 18:01:12 -0700
Subject: Re: CAM from CMOS Micro Device,Inc.
Content-Type: text/plain; charset=US-ASCII; format=flowed
Mime-Version: 1.0 (Apple Message framework v482)
Cc: avb@cisco.com

To: <paul@cmosmd.com>
From: Andreas Bechtolsheim <avb@cisco.com>
In-Reply-To: <20020522002032.90535.qmail@bjork.linkline.com>
Message-Id: <71B7F61A-D5A2-11D6-A1B7-0030656F1896@cisco.com>
Content-Transfer-Encoding: 7bit

Paul:

I sent you a mutual NDA in a separate email.
Please sign and return by fax to 408-527-8254.

Can you estimate for me in writing the die size, power
and yield for a 20 Mbit, 128K x 160 bit Cisco TCAM4
running at 250 Million lookups per second.

Thanks, Andy

The implementation of 20Mbit TCAM4

Paul Huang

10/11/2002

The main reason that CMD's TCAM is low power is because the differential TCAM Cells we invented , and the match line can be sensed with small voltage differential signal swing(say 0.2 V), comparing with the conventional TCAM cell which need to have 1.0V signal match line full swing. Since we only need small voltage swing , the transistor discharging match line inside TCAM cell can be much smaller to achieve the same speed, since small signal voltage swing need discharge less electrical charge and the less discharging current is needed to achieve the same speed, so the discharging transistors within the TCAM cell can be smaller. The transistor is smaller and the capacitance loading to both match line and the match data bit line is smaller and the driver size can be smaller too to drive less capacitance match data bit line So the entire chip capacitance is reduced and the power is reduced, Since the driver

size is reduced and the clock loading capacitance is also reduced and clock power is also reduced. Also since the differential match line is low voltage swing, the power is proportional to the voltage and voltage square, so the power is further reduced. In the design, most circuit is self-timing and the clock loading is dramatically reduced. The detail power consumption for the worst is calculated based on TCAM4 SPEC.

The power dissipation for the entire CAM core(not include I/O), for the worst case:

Every cell is compared . every match line is discharged , every match data bit line is switched and 100% time entire chip full searching with 1.0 V supply: In the calculation all the transistor and wire capacitance use the worst case data .

The total power on match data bit line and the TCAM cells is : 4.05 W

The total power on match line comparison and sense amplifier is : 3.93W

The total power of priority encoding and address binary encoding: 0.61 W

The total bus power is : 1.22W

The total clock power consumed on CAM comparison at 250 MHz is : 1.04 W

The total combine power is :

4.05+3.93+0.61+1.16+0.47= 10.85W

with 0.85V supply(for CMD's design which is enough for 250 MHz speed) is 7.3W

with 50% read or write and 50% search the entire chip

4.15W

If averagely only search 50% of the whole chip(say 32 block out of 64 block) The power is roughly 2.1W

TCAM 20Mbit SPEC is partitioned to 64 block, each block is sized 2K x 160 bits. We partition them into four quadruple and each quadruple has 16 block (we suggest total 32 block and each quadruple 8 block). In our implementation,

We further divided each block into 8 sub-block. The design use TSMC 0.09um Logic process.

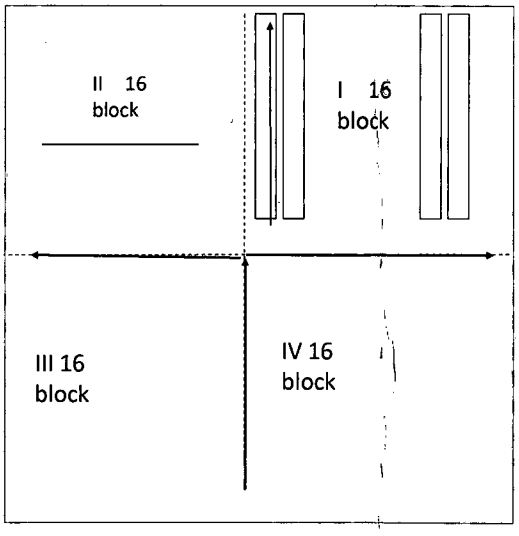


Fig.1 The chip floor plan: the whole chip are divided into 64 lock. Each quadruple has 16 blocks. The input bus go to center first, then go to each quadruple, then masked into each block

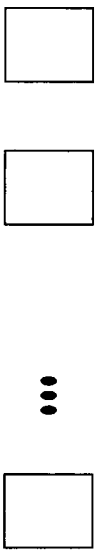


Fig.2 Each block(column) are further divided into 8 sub-block and priority encoded among them , they share one set mask register

I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed this 8th day of July, 2018 in San Jose, California.

Xiaohua Huang

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS

MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

DECLARATION OF XIAOHUA HUANG REGARDING the reverse engineering of TCAM chips of Broadcom Ltd.

I, Xuaihua Huang, declare as follows:

1. My name is Xiaohua Huang.

2. I have personal knowledge of the facts set forth in this Declaration and if called to testify as a witness, I could and would competently testify to them under oath.

3. The following email is from Huawei's Counsel Torkelson on Nov.18,2016, which inform that Broadcom allow the independent expert of Plaintiff to access Broadcom 's TCAM source code.

4. The follow Attorney bill and content from Huawei proves that they asked the schematics of TCAM built in August, 2016. and calculated Royalty of TCAMIP of eSilicon related.

jtorkelson@carterscholer.com
Xiaohua Huang v. Huawei; EDTX; Case No. 2:15-cv-1413
Production of NSE5512 Schematics to Plaintiff's Experts
John Torkelson

Fri 11/18/2016 10:16 AM xiaohua-paul huang

Paul,

This morning Huawei received authorization from Broadcom Corporation for the disclosure of the NSE5512 chip schematics to your three technical experts. Huawei is, therefore, withdrawing its objections to disclosure of these schematics to your experts. These schematics are designated RESTRICTED CONFIDENTIAL SOURCE CODE and are available at the offices of Carter Scholer Arnett Hamada and Mockler in Dallas, Texas pursuant to the terms of Judge Payne's Protective Order entered in this action during regular business hours. Please let me know when one or more of the experts intends to visit to access these schematics and I will make the necessary arrangements.

Best regards,
John

CARTER
SCHOLER

8150 N. Central Expressway, Suite 500, Dallas, TX 75206
Main: 214.550.8188 Accounting: 214.838.3644
Tax ID: 38-3863317

08-3

Jason Ding
Huawei Technologies Co. Ltd.
IPR Department-G1, Huawei Headquarter
Bantian, Longgang District
Shenzhen, 518129
China

Invoice Numbe
Invoice Period: 08-01-2016 - 08-3

Payment Terms: Due Upon Receipt

RE: HUAW01-0002 Xiaohu Huang, CMOS Micro Device Inc.

Legal Services Rendered

Date	Professional	Task	Hours	Rate
08-01-2016	John Torkelson	L320 - Document Production	1.900	312.00
	Email to eSilicon regarding additional schematics (.3); draft memo concerning collection of documents needed for expert analysis of a reasonable royalty and send to client (1.6)			
08-02-2016	John Torkelson	L320 - Document Production	2.600	312.00
	Draft memo regarding calculation of a reasonable royalty based on the smallest saleable infringing unit (1.9); telephone conference with eSilicon regarding declaration for summary judgment motion (.7)			
08-02-2016	Brooks W Taylor	L130 - Experts / Consultants	1.700	312.00
	Consult with damages expert regarding Huawei discovery needed for damages model			
08-03-2016	John Torkelson	L420 - Expert Witnesses	2.500	312.00
	Email to Broadcom regarding declaration to Support Huawei's Motion for Summary Judgment of Invalidity (.2); research entire market value rule for calculating reasonable royalty (2.3)			
08-05-2016	John Torkelson	L320 - Document Production	2.400	312.00
	Review schematics of eFlexCAM cells provided by eSilicon and send to Dr. Carl Sechen for his analysis and use in his non-infringement expert report (.5); research on-sale bar defense (.5); telephone conference with potential non-infringement experts (1.4)			
08-05-2016	John Mockler	L320 - Document Production	0.500	312.00

I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed this 8th day of July, 2018 in San Jose, California.

Xiaohua Huang

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS

MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv- 01413 JRG/ RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD. Defendant.	)	DEMAND FOR JURY TRIAL

DECLARATION OF XIAOHUA HUANG REGARDING EXHIBIT A "DECLARATION OF LI PENGYAN" IN DKT. NO. 179-1 FILED ON JANUARY 31, 2017

I, Xiaohua Huang, declare as follows:

1. My name is Xiaohua Huang. From 2000 to present I am the Chairman of CMOS Micro Device Inc. located in 900 E. Hamilton, Room 100, Campbell, California, USA.

2. I have personal knowledge of the facts set forth in this Declaration and if called to testify as a witness, I could and would competently testify to them under oath.

3. The content in paragraph 4, 5, 6, 7, 8 and 9 of "declaration of Li Pengyan" in Exhibit A of Dkt. No. 179-1 are different and contrary to the fact. Plaintiff Xiaohua Huang does not remember he said and did anything exactly same as the content in paragraph 4, 5, 6, 7, 8 and 9 of "declaration of Li Pengyan" in Exhibit A of Dkt. No. 179-1, so Plaintiff Xiaohua Huang deny the content in paragraph 4, 5, 6, 7, 8 and 9 of "declaration of Li Pengyan" in Exhibit A of Dkt.No. 179-1. On the other hand Plaintiff Mr.

Xiaohua Huang remember that Ms Penyan Li said to him that:

3-1 Broadcom Ltd will pay the cost of litigation and infringement relief;

3-2 The designer of HiSilicon (Huawei fully owned subsidiary) will change the TCAM design and will not use differential sense amplifier to match line in the future, which indicated that the differential sense amplifier to match line has been used in the past.

3-3 Ms. Pengyan Li worked in litigation department just for one year, before she worked on patent prosecution and she thought my differential sensing to match line design of "patents-in-suit" is unique and different from all the pre-arts. Ms. Li also said that she would arrange a meeting between me and the executives of product line division since the infringement relief of Huawei's portion will be paid by the product line division.

3-4 Ms Pengyan Li also said to me that this case is different from the others who purchased patents and sued Huawei for patent infringement relief since I am the inventor of the "patents-in-suit".

4. There are several telephone conversation between Mr. Xiaohua Huang and Ms. Penyan Li of Huawei. At beginning of each telephone conversation Mr. Xiaohua Huang always states that the content of this conversation can not be recorded with the consent of Ms. Pengyan Li, so I have no records of telephone conversation to prove that the content in paragraph 4, 5, 6, 7, 8 and 9 of "declaration of Li Pengyan" in exhibit A of Dkt.No. 179-1 are false statement beside my memory, but the written email in the below can

help to prove the content in paragraph 4, 5, 6, 7, 8 and 9 of "declaration of Li Pengyan" in exhibit A of Dkt.No. 179-1 are false statement and Huawei's internal Counsel may not have been in good-faith.

5. The email between Huawei Penyan Li and Mr. Xiaohua(paul) Huang.

No. 1 email on September 14, 2015

Huawei's email and NDA on discussion of settlement

From: Lipengyan <pengyan.li@huawei.com> Sent: Monday, September 14, 2015 7:33 PM

To: xiaohua-paul huang

Subject: 答复: Xiaohua Huang et al. v. Huawei: propose a extension to respond

黄总，

在进一步讨论之前，我们需要签署两份文件，第一份就是 NDA，即后续为了解决问题，我们相互披露的保密信息不得用于除和解谈判以外的其他目的，不得向第三方披露。

第二份 3 Leaf Confirmation letter 是为了满足美国政府的要求，说明我们这个诉讼不涉及前 3 Leaf 公司的专利，华为每个案子都要带上这份文件的。

您签字以后，扫描一份，发个电子件给我就行了。

Translation of the above Chinese content

Mr. Huang,

Before further discussion we need to sign two documents. First document is NDA, hereafter in order to resolve the disputes, we should NOT disclose the confidential information we share with each other, and will use the confidential information we share with each other for the

negotiation of settling this case only.

The second document of 3 Leaf Confirmation letter is to meet the requirement of American Government, state that this case is not related to the previous patents of 3 Leaf company. Huawei's every case needs to bring this document. After signing them, scan and email them to me please.

Lillian (Li Pengyan)
Huawei Technologies Co.LTD. Tel: +86-755-28783883 Mobile: +86-13682591033
E-mail:pengyan.li@huawei.com

No. 2 email on September 15, 2015
HUAWEI'S EMAIL TO ASK A TELEPHONE CALL WITH MR. HUANG
From: Lipengyan <pengyan.li@huawei.com>
Sent: Tuesday, September 15, 2015 7:18 PM
To: xiaohua-paul huang
Subject: 答复: 答复: Xiaohua Huang et al. v. Huawei: propose a extension to respond

黄总，
附件是我这边签好的 NDA。请接收。
今天我们再通个电话，如何？

Translation of the above Chinese content

Mr. Huang,
The attachment is the NDA signed by my side, please keep it.
MAY WE HAVE A TELEPHONE CALL TODAY.

Lillian (Li Pengyan)

Huawei Technologies Co.LTD.
Tel: +86-755-28783883
Mobile: +86-13682591033
E-mail:pengyan.li@huawei.com

No. 3 email on February 5, 2016
Huawei express its intention to discuss with Mr. Huang DIRECTLY on settlement.

From: pengyan.li@huawei.com
To: xiaohua_huang@hotmail.com
CC:zhangxiaowu@huawei.com;
wangdonghui@huawei.com;
daixianfeng@huawei.com Subject: Re: Xiaohua Huang v. Huawei - Defendant's Notice of Compliance with Local Patent Rules 3-3 and 3-4
Date: Fri, 5 Feb 2016 09:17:03 +0000

黄总，您好!

完成 Invalidity contentions 递交后，华为也正在为下一步 claim construction 及 mediation 做准备。

本案华为团队愿意和您进行直接和解谈判，以节约双方的资源和时间。由于春节假期将近，建议在 2.14 日-2.19 日这一周选定一天，双方进行电话会议。具体会议接入号码，待您反馈日期和具体时间后，我来提供。
祝 新年快乐!

Translation of the Chinese content in the above.

Hello Mr. Huang,

After submitting "Invalidity contentions" Huawei is preparing "claim construction and mediation",

For this case Huawei team intends to discuss settlement DIRECTLY with you in order to save time and resource of both side.

Because it is close to the (Chinese)New Year, suggest choosing a day between February 14- 19, hold a telephone conference participated by both side, I will provide the detail phone number upon your indicating the date and time.

Happy (Chinese)New Year!

Lillian (Li Pengyan)
Huawei Technologies Co.LTD.
Tel: +86-755-28783883
Mobile: +86-13682591033
E-mail:pengyan.li@huawei.com

No. 5 email on February 15, 2016,

From: Lipengyan <pengyan.li@huawei.com>
Sent: Monday, February 15, 2016 5:12 PM
To: xiaohua-paul huang
Cc: Zhangxiaowu (Emil); Wangdonghui; Daixianfeng (Daniel); Sunyan (Sunyan)
Subject: 答复: Xiaohua Huang v. Huawei - Defendant's Notice of Compliance with Local Patent Rules 3-3 and 3-4

Ongoing settlement discussions subject to FRE 408.

Based on the above cause, Huawei expect that you withdraw the complaint. Even if Huawei propose an resolution of settlement, the settlement amount will be very low. If you expect a high settlement number, HUAWEI WILL CONTINUE THE LAWSUIT TO AVOID MORE SIMILAR COMPLAINTS AGAINST HUAWEI HAPPENS IN THE FUTURE.

Lillian (Li Pengyan)
Huawei Technologies Co.LTD.
Tel: +86-755-28783883
Mobile: +86-13682591033
E-mail:pengyan.li@huawei.com

No. 6 email on May 23, 2016,
Huawei email to Mr. Huang and ask to meet in person at Dallas, TX to discuss the settlement of the case

From: Lipengyan <pengyan.li@huawei.com>
Sent: Monday, May 23, 2016 8:48 PM

To: xiaohua-paul huang
Cc: Wangdonghui; Daixianfeng (Daniel)

Subject: 答复：Xiaohua Huang v. Huawei - Defendant's Notice of Compliance with Local Patent Rules 3-3 and 3-4

黄总，您好！
下月 6.7-13 我将出差美国 Dallas，不知道介时您是否在 Dallas，如果有机会，希望与您谈一下本案。
另，按专利诉讼的一般作法，和解初步方案应是原告先提出，如果您一直坚持要华为先提出和解方案，本案和解谈判恐怕难以继续。
祝 好！
Translation of the Chinese content in the above.
Hello Mr. Huang,

Next Month June 7 –June 13 I will be in Dallas, USA, wonder you would be
in Dallas on that time , if possible , hope to discuss this case with you.

P.S. Based on the common practice of patent litigation case, the initial terms of settlement should be proposed by Plaintiff, if you keep insisting Huawei propose the initial terms of settlement, the negotiation of settlement for this case could hardly continue.

Lillian (Li Pengyan)
Huawei Technologies Co.LTD.
Tel: +86-755-28783883
Mobile: +86-13682591033
E-mail:pengyan.li@huawei.com

6. In No. 1 and No. 2 email of September 15, 2016 to prepare the discussion of settlement Ms

Pengyan Li of Huawei asked Mr. Huang to sign NDA which agree not to disclose the information shared in discussion of the case settlement and the information shared in the discussion can ONLY be used for settling the case. This email showed that Ms. Li initiated the discussion of settling the case. Also Ms. Pengyan Li of Defendant Huawei violates the NDA first regardless. Based on NDA signed Mr. Xiaohua Huang can not disclosed the details of the telephone conversation. In No.2 email Ms. Pengyan Li asked Mr. Xiaohua Huang: "MAY WE HAVE A TELEPHONE CALL TODAY."

7. In No.3 email of February 5, 2016 Ms Pengyan Li of Huawei stated that Huawei's team wants to discuss settlement DIRECTLY with Mr. Xiaohua Huang. Huawei wants to set up a telephone conference upon the date proposed by Mr. Xiaohua Huang.

8. No. 4 and No.5 email showed that Defendant Huawei's telephone conference is just a cheating measure to extract information from Plaintiff Xiaohua Huang. After Mr. Huang asked Ms. Pengyan Li of Defendant Huawei to make an initial offer in No.4 email, Ms. Pengyan Li of Defendant Huawei in No. 5 email stated Defendant has no intention to settle the case to make offer, which is contrary to what stated in No.3 email. Defendant is in BAD faith.

9. On May 23, 2016 Ms. Pengyan Li of Defendant Huawei sent Mr. Xiaohua Huang No. 6 Email, asked Mr. Xiaohua Huang to meet her at Dallas TX to discuss the case and asked Mr. Xiaohua Huang to make an initial proposal for settlement of the case. Pengyan Li copied all those emails to the other attorneys of Huawei based on

the email lists..

10. On June 1, 2016 Ms. Pengyan Li of Defendant Huawei sent Mr. Xiaohua Huang No. 7 email and appreciated Mr. John Torkelson's rule 11 motion filing against Plaintiff Xiaohua Huang.

11. Based on No. 6 email and No. 7 email together it shows that Ms. Pengyan Li of Defendant Huawei is in very BAD faith. Defendant Huawei use "settlement of the case" as a measure to distract, fool and socialite confidential information ... from Plaintiff Xiaohua Huang.

12. On August 19, 2016 at Defendant Huawei's request Plaintiff Xiaohua Huang sent No. 8 email to Defendant Huawei and sincerely offer that 10million US dollar (for a muti-hundred million USD case) is the amount to license the "patent-in-suit" to Defendant Huawei since Defendant Huawei's most networking products will not be functional or in very low performance without using the "patent-in-suit".

13. The purpose of perjured " Declaration of Li Penyan" is to annoy the Court and make no attorney will sign on this case to represent Mr. Xiaohua Huang.

I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed this 5th day of February, 2017, in Campbell, California.

Xiaohua Huang

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

DECLARATION OF XIAOHUA HUANG REGARDING EXHIBIT B "DECLARATION OF JOHN S. TORKELSON" IN DKT. NO. 179-2 FILED ON JANUARY 31, 2017

I, Xiaohua Huang, declare as follows:

1. My name is Xiaohua Huang. From 2000 to present I am the Chairman of CMOS Micro Device Inc. located in 900 E. Hamilton, Room 100, Campbell, California, USA.

2. I have personal knowledge of the facts set forth in this Declaration and if called to testify as a witness, I could and would competently testify to them under oath.

3. The content in paragraph4, 5, 6 and 7 of "declaration of John Torkelson " in Exhibit B of Dkt. No. 179-2 are different and contrary to the fact. Plaintiff Xiaohua Huang denys the content in paragraph 4, 5, 6 and 7 of "declaration of John Torkelson" in Exhibit B of Dkt. No. 179-2.

4. Paragraph 5 of "declaration of John Torkelson " in Exhibit B of Dkt. No.179-2 are completely false and contrary to the facts to the existed written materials in the below:

On Page 21 of "3-1. Disclosure of Asserted Claims and Infringement Contentions" which was emailed to Defendant in November 30, 2015 in Exhibit X- 3 contains the following content:

" (f) the patent application to our own TCAM IP design

Claim chart of U.S. patent RE45259 against the TCAM IP developed by Xiaohua Huang and CMOS Micro Device Inc.(TCAM IP of Huang) , including the 0.18um TSMC process 64X144 bit developed in 2002."

The 0.18um TSMC process 64X144 bit developed in 2002 include most the content of U.S. patent RE45259

On page 28-31 "3-2-a the files" which was emailed to Defendant in November, 2015 in Exhibit 4 contains the following content:

```
Date: Tue, 1 Oct 2002 18:01:12 -0700
Subject: Re: CAM  from CMOS Micro Device,Inc.
Content-Type: text/plain; charset=US-ASCII; format=flowed
Mime-Version: 1.0 (Apple Message framework v482)
Cc: avb@cisco.com


To: <paul@cmosmd.com>
From: Andreas Bechtolsheim <avb@cisco.com>
In-Reply-To: <20020522002032.90535.qmail@bjork.linkline.com>
Message-Id: <71B7761A-D5A2-11D6-A1B7-0030656F1896@cisco.com>
Content-Transfer-Encoding: 7bit



Paul:

I sent you a mutual NDA in a separate email.
Please sign and return by fax to 408-527-8254.

Can you estimate for me in writing the die size, power
and yield for a 20 Mbit, 128K x 160 bit Cisco TCAM
running at 250 Million lookups per second.

                                Thanks, Andy
```

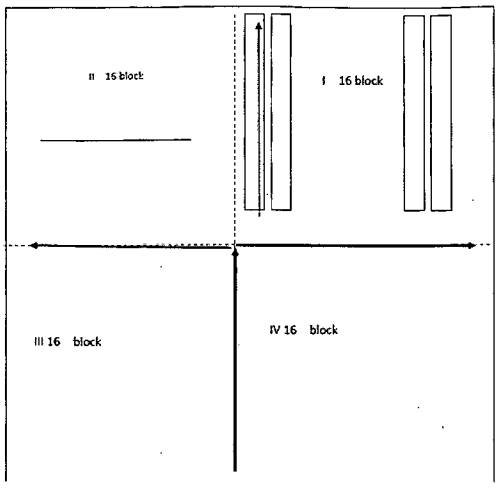


Fig.1 The chip floor plan: the whole chip are divided into 64 lock. Each quadruple has 16 blocks. The input bus go to center first, then go to each quadruple, then masked into each block

Fig.2

Each block(column) are further divided into 8 sub-block and priority encoded among them ,
they share one set mask register

The combination of Fig. 1 and Fig. 2 above from Page 28-30 of "3-2-a the files" disclosed Cisco Systems in October, 2002 under NDA are Figure 1 of RE45259.

The file 3-1 and 3-2 sent to Defendant in case 2:15-cv-1413 and the file 3-1 and 3-2 sent to Defendant in case 2:16-cv-947 as same except that in case 2:16-cv-947, found the factual material evidence released by Netlogic that the Netlogic NSE5512 started being manufactured on February 26, 2003, which is different from what Defendant Counsel claimed that Netlogic NSE5512 was on sale as early as May, 2002.

6. Paragraph 7 of "declaration of John Torkelson " in Exhibit B of Dkt. No. 179-2 are completely false and contrary to the facts of existed written materials as showed in the below:

In compliance with Fed. Rule of C.P. 26(a)(2)(B), Plaintiff emailed Defendant Counsel the Expert report of Mr. Xin Liu on November 8, 2016 (see Exhibit X-3) and get the notice filed on November 10, 2016 as Dkt. No.119.

I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed this 5th day of February, 2017, in Campbell, California.

Xiaohua Huang

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

ORDER

Before the Court are motions to compel, to amend the complaint, and to amend infringement contentions (Dkt. Nos. 94, 95, 96) filed by Plaintiff Xiaohua Huang.

The Court previously entered an Order staying this case and all associated deadlines until September 28, 2016. The Court expressly stated that this stay was being entered to give Plaintiff "time to consider whether he wishes to maintain this lawsuit and to seek the assistance of counsel." (Dkt. No. 93.) The Court also instructed Defendant not to file any summary judgment motion until after the expiration of the stay. (Id.)

Accordingly, the Court will not entertain Plaintiff's motions to compel or to amend while the stay is in effect. Plaintiff's Motions (Dkt. Nos. 94, 95, 96) are DENIED WITHOUT PREJUDICE. Plaintiff may re-file these motions only after the expiration of the stay.

SIGNED this 15th day of August, 2016

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEITECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

PLAINTIFF XIAOHUA HUANG'S MOTION TO COMPEL "NECESSARY INFORMATION FOR DISCOVERY" PRODUCTION

The Court Docket Control Order required Huawei Technologies ltd. ("Huawei") to comply with Local Patent Rule 3-4(a) on February1, 2016, and produce "Source code, specifications, schematics, flow charts, artwork, formulas, or other documentation sufficient to show the operation of any aspects or elements of an Accused Instrumentality identified by the patent claimant in its P. R. 3-1(c) chart."

After repeatedly asking Huawei to provide the relevant document, Huawei only provided plaintiff the product brief description of NE40E, S6300, S9300, S9700 and S12700 which are public information and mainly same as exhibited in the plaintiff original complaint.

More than that Huawei have their directors and managers with so called personal knowledge and information to testify that the accused equipment sold to USA containing no TCAM which infringing the "patent-in-suit" while the equipment of the same product model No. sold outside the United

States containing the TCAM infringing the "patent-in-suit" to avoid providing any related TCAM information to Plaintiff.

I INTRODUCTION

Based on information and belief, also based on The content of product brochure of eSilicon's TCAM IP, the TCAM IP of eSilicon Corporation have infringed our patent-in-suit (US6999331, US6744653 and US RE45259). HiSilicon (a subsidiary fully owned by Huawei Technologies Ltd) licensed TCAM IP of eSilicon in 2011; Based on the data of reverse engineering of TCAM chips of Broadcom Co. the TCAM chips of Broadcom have infringed patent-in-suit.

Based on the information in page5 of Docket No.52 filed by Huawei that at least seven HiSilicon ASIC chips have used and are currently using the TCAM IP of eSilicon Corporation, HiSilicon ASIC chips have exclusively been used and are currently being used in Huawei's products such as switches, routers and networking security equipment etc. So Huawei's products have infringed and are infringing our patent-in-suit. Besides Huawei's products also use TCAM chips of Broadcom which have infringed "patent-in-suit".

The major function of TCAM is table look up, which is used to perform the important function of Routers and Switches such as checking the IP address and the content flowing through it, the performance of TCAM affect the performance of Routers and Switches directly. Almost all the router and switches of Huawei contain TCAM to achieve its major functions. In2015 Huawei's revenue was 60 Billion USD, two-thirds were from networking products including switches and routers, expected revenue will be 150 Billion USD in 2020.

II BACKGROUND

In Docket No.52 Huawei claimed that none of Huawei's products sold into the United States contain the TCAM infringing patent-in-suit while the Huawei's products sold outside the United States contain the seven chips containing the eSilicon's TCAM which infringe the patent-in-suit.

Since the filing of complaint on August 14, 2015, Huawei have refused to provide any information related to TCAM used in the accused equipment, even hide the model No. of the seven chips containing the TCAM IP infringing the patent-in suit and the model No. of CPOS circuit Board containing one of the "seven chips".

So it is the Plaintiff's obligation to move the Court to compel defendant Huawei to produce "the necessary information for Discovery" listed, not limited , in page 4 and page5 to further prove that Huawei's products sold in the United States have been and is infringing the patent-in-suit beside the solid evidence from the product brochure of TCAM IP of eSilicon Co. and the data of reverse engineering of the TCAM chips of Broadcom.

III. APPLICABLE LAW

"Parties may obtain discovery regarding any non privileged matter that is relevant to any party's claim or defense—including the existence, description, nature, custody, condition, and location of any documents or other tangible things . . . ." Fed. R. Civ. P. 26(b) (1). Pursuant to Federal Rule of Civil Procedure 37, a party may move the court to compel disclosure or discovery after attempting to resolve the disputes in good faith without court intervention. "The rules of discovery are accorded a broad and liberal application to affect their purpose of adequately informing litigants in civil trials." Edward D. Ioli

Trust v. Avigilon Corp., No. 2:13-cv-605, 2012 U.S. Dist. LEXIS 164425, at *3 (E.D. Tex. Nov. 16, 2012) (citing Herbert v. Lando, 441 U.S. 153, 176 (1979))

IV. ARGUMENT

Plaintiff Huang's motion to compel should be granted for three reasons. (1)Huawei did not satisfy its obligations under P.R. 3-4(a) to produce all relevant documents to show the operation of the accused instrumentalities .... (2)Huawei's ongoing failure to comply with P.R. 3-4(a) provides it with a tactical advantage by significantly compressing the amount of time Huang has to develop its infringement case. (3)In Docket No.52 with testimony from their manager and director Huawei claimed that the networking products containing seven ASIC chips which contain the TCAM infringing the patent–in-suit have only been sold outside the United State, generating up to 40 billion USD in 2015 alone, while none of the products of same model No. sold into the United States contain any of those seven ASIC chips. So plaintiff added more accused products which functions have to be implemented by TCAM, then need to find further evidence to prove that Huawei's products containing the TCAM IP infringing the patent-in-suit have been sold in the United States with the Court's support of granting plaintiff's motion to compel Huawei to produce "the necessary information for Discovery".

The information listed below is what we have asked many time for Huawei to provide and Huawei refuse to provide (Exhibit X1), those information is the key to further prove the infringement for this case. We respectfully ask the Court to compel Huawei to provide "the necessary information for Discovery" listed in the blow:

1. (1.1) The model No. of the seven ASCI chip SD XXXX from a to g. in paragraph 5 of Exhibit C of Document No. 52 filed by Huawei on May 23, 2016.
(1.2) The data sheet and specification of those seven chips.
(1.3) The products model numbers which used and are using those seven chips
(1.4) In what manufacture process (40nm, 28nm or 16nm) that those seven chips were made.
2. The model numbers of five CPOS board which contain the ASIC chips containing the TCAM IP from eSilicon Corporation listed in paragraph 5 of Exhibit D in Document No. 52 filed on May 23, 2016. The product model No. using those five CPOS board.
3. The contract which HiSilicon signed with eSilicon in the licensing of eSilicon TCAM IP. the items which eSilicon Corporation released to HiSilicon. The schematic and spice netlist of TCAM cells(without showing the detail transistor size) used in the TCAM IP.
4. The source codes of TCAM IP which eSilicon released to HiSilicon including, not limited to, spice net list .
5. The list of the model No. of chips used in the accused equipments in fourth amended complaints, which are Huawei's networking products sold in the United States.
The contents in the above 1, 2, 3 and 5 are not in the category of confidential and attorney eye only material, all the TCAM cells belong to the public information.
Once the source code of TCAM IP in the above 4 is prepared, plaintiff will have independent expert or Counsel to get it.

V. CONCLUSION

Huawei has already consumed seven months

allotted for fact discovery in this case without satisfying its P.R. 3-4(a) obligations. Huawei should not be permitted to delay "the necessary information for Discovery" production with multi-week-long disputes. Accordingly, Plaintiff Xiaohua Huang respectfully requests the Court to compel Huawei to provide "the necessary information for Discovery" listed in page 4 and 5 above.

Dated: July 6, 2016 Respectfully Submitted,

Xiaohua Huang

P.O. Box 1639
Los Gatos, CA95031
Email: xiaohua_huang@hotmail.com

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, Plaintiff	) Case No.: 2:15-cv-01413 JRG/RSP
v.	)
HUAWEITECHNOLOGIES CO. LTD.	) DEMAND FOR JURY TRIAL
Defendant.	)

PLAINTIFF XIAOHUA HUANG'S SECOND MOTION TO COMPEL "THE NECESSARY INFORMATION FOR DISCOVERY" PRODUCTION TO RESPONSE THE COURT ORDER ON JULY 27, 2016 (DKT. NO. 93)

In response to the court order on July 27, 2016 (Dkt. No. 93), Plaintiff Xiaohua Huang modified the "motion to compel 'the necessary information for discovery' " (Dkt. No.76, Exhibit 2) and files the "second motion to compel 'the necessary information for discovery'" as follows:

I INTRODUCTION

Based on information and belief, also based on the content of product brochure of eSilicon's CAM IP, the TCAM IP of eSilicon Corporation have infringed our patent-in-suit (US6999331, US6744653 and US RE45259). HiSilicon (a subsidiary fully owned by Huawei Technologies Ltd) licensed TCAM IP of eSilicon in 2011(Exhibit D); Based on the data of reverse engineering of TCAM chips of Broadcom Co. the TCAM chips of Broadcom have infringed patent-in-suit.

The major function of TCAM is table look up, which is used to perform the important function of

Routers and Switches such as checking the IP address and the content flowing through it, the performance of TCAM affect the performance of Routers and Switches directly. Based on information and belief the routers and switches of Huawei such as S6300, S9300, S9700, S12700, CloudEngine 12800 and NE 40 contain TCAM to achieve its major functions.

The TCAM used in those Huawei's products are

(1) from eSilicon,

(2) redesigned by HiSilicon based upon the TCAM IP from eSilicon and

(3) from Broadcom,

all of them infringed the "Patent-in-suit".

II BACKGROUND

Based on the information in page 5 of Dkt.No.52 filed by Huawei that at least seven model HiSilicon ASIC chips (with model numbers: SDxxxxa, SDxxxxb, ... and SDxxxxg) have used and are currently using the TCAM IP of eSilicon Corporation, HiSilicon ASIC chips have exclusively been used and are currently being used in Huawei's products such as switches, routers and networking security equipment etc. So Huawei's products have infringed and are infringing our patent-in-suit.

In Dkt No.52 Huawei claimed that none of Huawei's products sold into the United States contain the seven model HiSilicon ASIC chips (with model numbers: SDxxxxa, SDxxxxb, ... and SDxxxxg) containing the TCAM IP of eSilicon Corporation while the Huawei's products sold outside the United States contain the seven chips containing the eSilicon's TCAM which infringe the

patent-in-suit.

Based on what claimed in Dkt No.52 Huawei further filed Rule 11 Sanction against Plaintiff and obtained the permission to file motion for summary judgment of non-infringement(Dkt. No. 54, Dkt. No. 93).

So Huawei has the burden to prove that no Huawe's products containing the seven model HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation have been sold in the United States, and Huawei need to provide the information including:

(1) The model numbers of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those seven HiSilicon ASIC chips were first time fabricated.

(2) The model numbers of Huawei's products containing those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those Huawei's products containing those seven HiSilicon ASIC chips were first time fabricated.

(3) The manufacture process (such as 40nm, 28nm .. etc) of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation.

(4) The Lists of Huawei's products sold in the United States in the past five years.

For Plaintiff to verify whether the Huawei's products containing those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon

Corporation have been sold in the United States.

III. APPLICABLE LAW

"Parties may obtain discovery regarding any non privileged matter that is relevant to any party's claim or defense—including the existence, description, nature, custody, condition, and location of any documents or other tangible things . . . ." Fed. R. Civ. P. 26(b)(1). Pursuant to Federal Rule of Civil Procedure 37, a party may move the court to compel disclosure or discovery after attempting to resolve the disputes in good faith without court intervention. "The rules of discovery are accorded a broad and liberal application to affect their purpose of adequately informing litigants in civil trials." *Edward D. Ioli Trust v. Avigilon Corp.*, No. 2:13-cv-605, 2012 U.S. Dist. LEXIS 164425, at *3 (E.D. Tex. Nov. 16, 2012) (citing *Herbert v. Lando*, 441 U.S. 153, 176 (1979))

IV. ARGUMENT

Huawei has the burden to provide those information listed in the below to support its Dkt. No. 52, Dkt. No. 54. Plaintiff respectfully asks the Court to compel Huawei to provide "the necessary information for Discovery" listed in the blow:

(1) The model numbers of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those seven HiSilicon ASIC chips were first time fabricated.

(2) The model numbers of Huawei's products containing those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those Huawei's products containing those seven HiSilicon ASIC

chips were first time fabricated.

(3) The manufacture process (such as 40nm, 28nm ... etc) of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation.

(4) The Lists of Huawei's products sold in the United States in the past five years.

All the information (1)-(4) are not classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33). Because

(a) The model numbers of ASIC or network processor chips do not contain any information classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33).

(b) The model numbers of Huawei's products do not contain any information classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33).

(c) The manufacture process (such as 40nm, 28nm ... etc.) of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation is just the "process number" such as the process of TCAM which HiSilicon licensed from eSilicon Corporation is 40nm (Exhibit D), which is not classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33).

(d) The Lists of Huawei's products sold in the

United States in the past five years is not classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33).

V. CONCLUSION

Huawei should not be permitted to further delay "the necessary information for Discovery" production. Accordingly, Plaintiff Xiaohua Huang respectfully requests the Court to compel Huawei to provide "the necessary information for Discovery" listed above.

Dated: July 6, 2016 Respectfully Submitted,

Xiaohua Huang
900 E. Hamilton Ave, Room 100
Campbell, CA95008
Email: xiaohua_huang@hotmail.com

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, Plaintiff	) Case No.: 2:15-cv-01413 JRG/RSP
v.	)
HUAWEITECHNOLOGIES CO. LTD.	) DEMAND FOR JURY TRIAL
Defendant.	)

PLAINTIFF XIAOHUA HUANG'S THIRD MOTION TO COMPEL "THE NECESSARY INFORMATION FOR DISCOVERY" PRODUCTION IN RESPONSE TO COURT ORDER DKT. NO.99 (FILED AUGUST 16, 2016)

In response to the court order on August 15, 2016 (Dkt.No. 99), Plaintiff Xiaohua Huang filed the "third motion to compel 'the necessary information for discovery' " as follows:

I INTRODUCTION

Based on information and belief, also based on the content of product brochure of eSilicon's CAM IP, the TCAM IP of eSilicon Corporation have infringed our patent-in-suit (US6999331, US6744653 and US RE45259). HiSilicon (a subsidiary fully owned by Huawei Technologies Ltd) licensed TCAM IP of eSilicon in 2011(Exhibit D); Based on the data of reverse engineering of TCAM chips of Broadcom Co. the TCAM chips of Broadcom have infringed patent-in-suit.

The major function of TCAM is table look up, which is used to perform the important function of Routers and Switches such as checking the IP address and the content flowing through it, the

performance of TCAM affect the performance of Routers and Switches directly. Based on information and belief the routers and switches of Huawei such as S6300, S9300, S9700, S12700, CloudEngine 12800 and NE 40 contain TCAM to achieve its major functions.

The TCAM used in those Huawei's products are:

(1) from eSilicon,

(2) redesigned by HiSilicon based upon the TCAM IP from eSilicon and

(3) from Broadcom,

all of them infringed the "Patent-in-suit".

II BACKGROUND

Based on the information in page 5 of Dkt.No.52 filed by Huawei that at least seven model HiSilicon ASIC chips (with model numbers: SDxxxxa, SDxxxxb, ... and SDxxxxg) have used and are currently using the TCAM IP of eSilicon Corporation, HiSilicon ASIC chips have exclusively been used and are currently being used in Huawei's products such as switches, routers and networking security equipment etc. So Huawei's products have infringed and are infringing our patent-in-suit.

In Dkt No.52 Huawei claimed that none of Huawei's products sold into the United States contain the seven model HiSilicon ASIC chips (with model numbers: SDxxxxa, SDxxxxb, ... and SDxxxxg) containing the TCAM IP of eSilicon Corporation while the Huawei's products sold outside the United States contain the seven chips containing the eSilicon's TCAM which infringe the patent-in-suit.

Based on what claimed in Dkt No.52 Huawei further filed Rule 11 Sanction against Plaintiff and

obtained the permission to file motion for summary judgment of non-infringement(Dkt. No. 54, Dkt. No. 93).

So Huawei has the burden to prove that no Huawe's products containing the seven model HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation have been sold in the United States, and Huawei need to provide the information including:

(1) The model numbers of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those seven HiSilicon ASIC chips were first time fabricated.

(2) The model numbers of Huawei's products containing those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those Huawei's products containing those seven HiSilicon ASIC chips were first time fabricated.

(3) The manufacture process (such as 40nm, 28nm .. etc) of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation.

(4) The Lists of Huawei's products sold in the United States in the past five years.

For Plaintiff to verify whether the Huawei's products containing those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation have been sold in the United States.

III. APPLICABLE LAW

"Parties may obtain discovery regarding any non privileged matter that is relevant to any party's claim or defense—including the existence, description, nature, custody, condition, and

location of any documents or other tangible things . . . ." Fed. R. Civ. P. 26(b)(1). Pursuant to Federal Rule of Civil Procedure 37, a party may move the court to compel disclosure or discovery after attempting to resolve the disputes in good faith without court intervention. "The rules of discovery are accorded a broad and liberal application to affect their purpose of adequately informing litigants in civil trials." *Edward D. Ioli Trust v. Avigilon Corp.*, No. 2:13-cv-605, 2012 U.S. Dist. LEXIS 164425, at *3 (E.D. Tex. Nov. 16, 2012) (citing *Herbert v. Lando*, 441 U.S. 153, 176 (1979))

IV. ARGUMENT

Huawei has the burden to provide those information listed in the below to support its Dkt. No. 52, Dkt. No. 54. Plaintiff respectfully asks the Court to compel Huawei to provide "the necessary information for Discovery" listed in the blow:

(1) The model numbers of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those seven HiSilicon ASIC chips were first time fabricated.

(2) The model numbers of Huawei's products containing those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those Huawei's products containing those seven HiSilicon ASIC chips were first time fabricated.

(3) The manufacture process (such as 40nm, 28nm ... etc) of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation.

(4) The Lists of Huawei's products sold in the United States in the past five years.

All the information (1)-(4) are not classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33). Because

(e) The model numbers of ASIC or network processor chips do not contain any information classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33).

(f) The model numbers of Huawei's products do Not contain any information classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33).

(g) The manufacture process (such as 40nm, 28nm ... etc.) of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation is just the "process number" such as the process of TCAM which HiSilicon licensed from eSilicon Corporation is 40nm (Exhibit D), which is not classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33).

(h) The Lists of Huawei's products sold in the United States in the past five years is not classified as "RESTRICTED-ATTORNEYS' EYE ONLY" or "RETRICTED CONFIDENTIAL SOURCE CODE" under the terms of the parties' Agreed Protective Order (Dkt. No. 33).

V. CONCLUSION

Huawei should not be permitted to further delay "the necessary information for Discovery" production. Accordingly, Plaintiff Xiaohua Huang respectfully requests the Court to compel Huawei to provide "the necessary information for Discovery" listed above.

Dated: October 6, 2016 Respectfully Submitted,

Xiaohua Huang
900 E. Hamilton Ave, Room 100
Campbell, CA95008

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEITECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

PLAINTIFF XIAOHUA HUANG'S FOURTH MOTION TO COMPEL "THE NECESSARY INFORMATION FOR DISCOVERY" PRODUCTION

In response to the court order on July 27, 2016 (Dkt. No. 93), Plaintiff Xiaohua Huang hired three independent experts. The three experts signed "UNDERTAKING OF EXPERTS OR CONSULTANTS REGARDING PROTECTIVE ORDER" which were filed in Dkt. No. 111 and Dkt. No. 112.

The Plaintiff filed many motion to compel and asked Defendant many time to get the materials for Discovery.

The Plaintiff respectively moves the Court to compel Defendant to make the files below (not limited to) available for the experts of Plaintiff to get and analyze.

1. Huawei has the burden to prove that no Huawe's products containing the seven model HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation have been sold in the United States, and Huawei need to provide the information including;

(1) The model numbers of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those seven HiSilicon ASIC chips were first time fabricated.

(2) The model numbers of Huawei's products containing those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those Huawei's products containing those seven HiSilicon ASIC chips were first time fabricated.

(3) The manufacture process (such as 40nm, 28nm .. etc) of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation.

(4)The Lists of Huawei's products sold in the United States in the past five years.

(5) The Specification, data sheets, Netlist and GDSII of the TCAM IP used in those seven chips.

(6) The Contract which Huawei (HiSilicon) signed with eSilicon Corporation to licensed the eFlaxCAM, the files transferred to Huawei from eSilicon.

2. The specification and datasheet of NSE 5512, the time that NSE 5512 was first on market, The schematic, GDSII and spice netlist of NSE 5512.

Huawei should not be permitted to further delay "the necessary information for Discovery" production. Accordingly, Plaintiff Xiaohua Huang respectfully requests the Court to compel Huawei to provide "the necessary information for Discovery" listed above.

Dated: October 27, 2016 Respectfully Submitted,

Xiaohua Huang
900 E. Hamilton Ave, Room 100
Campbell, CA95008
Email: xiaohua_huang@hotmail.com
Tel: 408 888 4916

Exhibit 1 the proposed court order
Exhibit 2 email to Huawei for discovery

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing instrument was served on all counsel and parties who have consented to electronic service on this 27 day of October, 2016 pursuant to Local Rule CV- 5(a)(3)(A).

Xiaohua Huang

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

XIAOHUA HUANG, Plaintiff v. HUAWEITECHNOLOGIES CO. LTD. Defendant.	) Case No.: 2:15-cv-) 01413 JRG/RSP)) DEMAND FOR) JURY TRIAL)

PLAINTIFF XIAOHUA HUANG'S FIFTH MOTION TO COMPEL "THE NECESSARY INFORMATION FOR DISCOVERY" PRODUCTION

In response to the court order on July 27, 2016 (Dkt. No. 93), Plaintiff Xiaohua Huang hired three independant experts. The three experts signed "UNDERTAKING OF EXPERTS OR CONSULTANTS REGARDING PROTECTIVE ORDER" which were filed in Dkt. No. 111 and Dkt. No. 112.

The Plaintiff respectively moves the Court to compel Defendant to make the files below (not limited to) available for the experts of Plaintiff to get and analyze.

(1) The model numbers of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those seven HiSilicon ASIC chips were first time fabricated.

(2) The model numbers of Huawei's products containing those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation. The time and date in which those Huawei's products containing those seven HiSilicon ASIC chips were first time fabricated.

(3) The manufacture process (such as 40nm, 28nm .. etc) of those seven HiSilicon ASIC chips containing the TCAM IP of eSilicon Corporation.

(4) The Lists of Huawei's products sold in the United States in the past five years.

(5) The Specification, data sheets, Netlist and GDSII of the TCAM IP used in those seven chips.

(6) The Contract which Huawei (HiSilicon) signed with eSilicon Corporation to licensed the eFlaxCAM, the files transferred to Huawei from eSilicon.

2. The specification and datasheet of NSE 5512, the time that NSE 5512 was first on market, The schematic, GDSII and spice netlist of NSE 5512.

Based on paragraph 5(d) of Protective Order Docket No. 33, that up to three experts hired by Plaintiff should be allowed to view the "Restricted Confidential material". The three expert can write the witness expert report and redact the confidential material. then Plaintiff files them to the Court. Also the Three experts can testify in the Trial. The Court should allow the three Expert to view the "Restricted Confidential material" based on the Protective Order As Justice requires.

Huawei should not be permitted to further delay "the necessary information for Discovery" production. Accordingly, Plaintiff Xiaohua Huang respectfully requests the Court to compel Huawei to provide "the necessary information for Discovery" listed above.

Dated: Nov. 26, 2016 Respectfully Submitted,

Xiaohua Huang
900 E. Hamilton Ave, Room
100 Campbell, CA95008

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

DECLARATION OF XIAOHUA HUANG REGARDING the reverse engineering of TCAM chips of Broadcom Ltd.

I, Xuaihua Huang, declare as follows:

1. My name is Xiaohua Huang.

2. I have personal knowledge of the facts set forth in this Declaration and if called to testify as a witness, I could and would competently testify to them under oath.

3.The attached copy of "Reverse-engineering drawing description" was generated based on the layout pictures of the chips photographed by Cellixsoft Corporation on TCAM chip model Nos NetLogic 75K72234 S200BL, NetLogic 75S10005A of Broadcom Ltd. The schematics were generated based on the layout pictures with the assistance of engineers in Wuxi Hengyu Micro Electronics ltd located in Wuxi, the People's Republic of China. The schematics in "Reverse-engineering drawing description" is consistent with the layout pictures photographed by Cellixsoft Corporation on

TCAM chip model Nos NetLogic 75K72234 S200BL, NetLogic 75S10005A of Broadcom Ltd.

Reverse-engineering drawing description

The logic drawing is based on the chip layout SEM picture. The chip are from Broadcom's TCAM (network search processor or knowledge based processor). We reverse two chips, which are 40Mbit and 20Mbit density, the internal design logic is identical. The picture are shown below. The logic diagram is extracted from the picture.

The first drawing FIG 1 is based on the reversed logic. One column of has 512 match line and match address, which has a corresponding priority encoding logic , each column has 16 block(group), each block(group) has 32 input. Every four input in every block(group) generate one output signal to indicate if there is a Hit or not in this four inputs, so the 32 input of each block(group) are divided into 8 sub-block signals which is achieved in box A, then BOX B is the hit generating logic of dynamic NOR, see FIG 2. BOX A and BOX B together generate block(group) hit. BOX C is FIG 3, which is 16 input dynamic NOR logic to generate second level column HIT1. Box d is the column priority encoding between 16 block(groups) , FIG.4 shows the priority encoding between the two adjacent two block(groups). BOX e is the priority encoding of each block(group), which is shown in FIG. 5.

The Hit signal is generated ahead of priority.

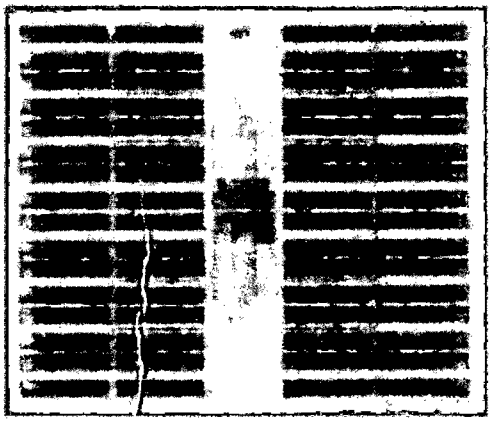
BOX f is the Address decoding after priority encoding, which is transforming thermal address to binary address, like 512 address to 9bit binary address, or 128 address to 7 bit binary address. Which is shown in the right side part of FIG.5 , FIG.6 . and FIG.7, FIG.9 and FIG.10, all use dynamic NOR logic.

Basically from the reverse engineering. The TCAM chip design has use the claim1, claim2 and claim6 as the following:

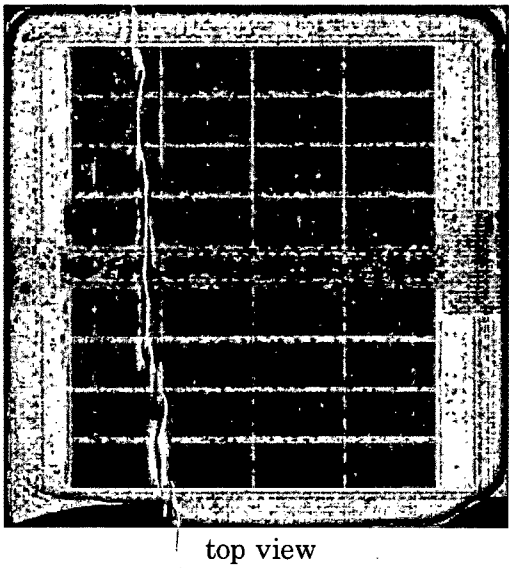
1. Divide the chip into many block, block are arranged in column and row. Each block has 32 input, each column has 4x 16 block. 16 column make 1 group column.(claim1)

2. Each block has same priority encoding logic, Each block (group) has Hit generation logic to generate block hit signal. There is priority encoding logic among the block(group) hit, which is column priority encoding. There is a column hit generation logic.(claim1)

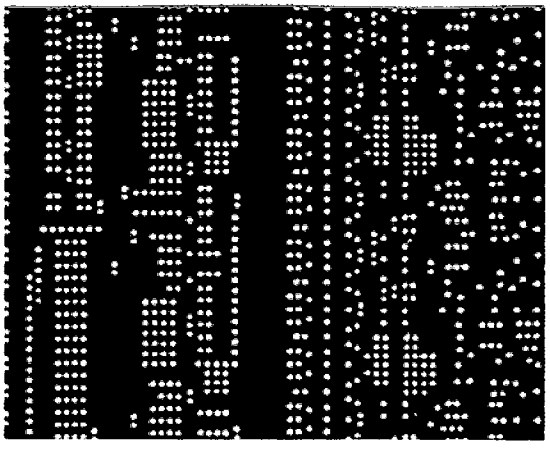
3. There is a block multiplexer(MUX) controlled by column priority encoding signal to select the block address(claim2), the control signal is generated before the block address is generated(claim6), the block hit generate the more significant address in the column(claim2).



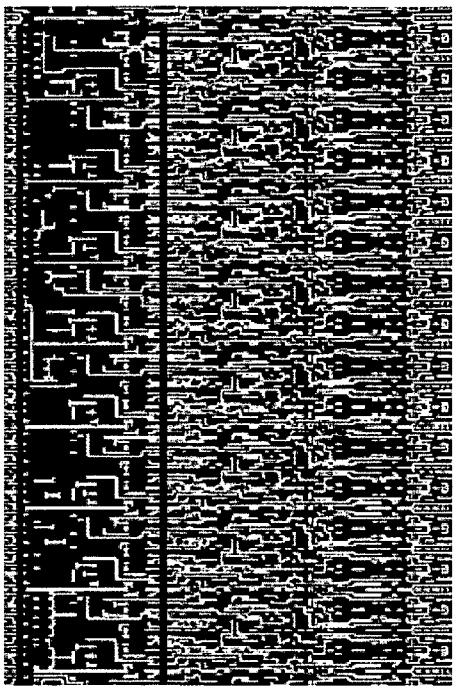
Picture 0 20Mbit chip top view.



top view



Picture 1 part of priority encoding logic of Poly view



Picture 4, metal 2 view

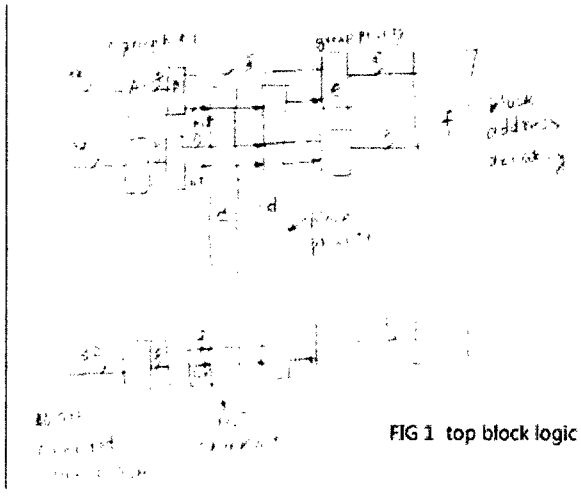


FIG 1 top block logic

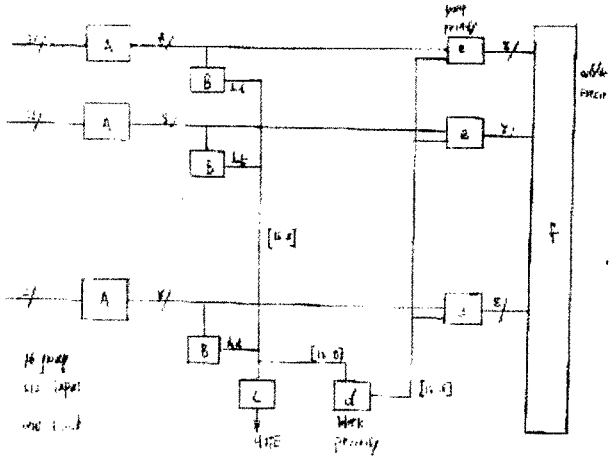


Fig1 is a column of 16 block, each block has 32 input, box B generate block hit, box C generate column hit. box e is the priority encoder of block, box d is the priority encoder of column. HIT is generated before the priority.

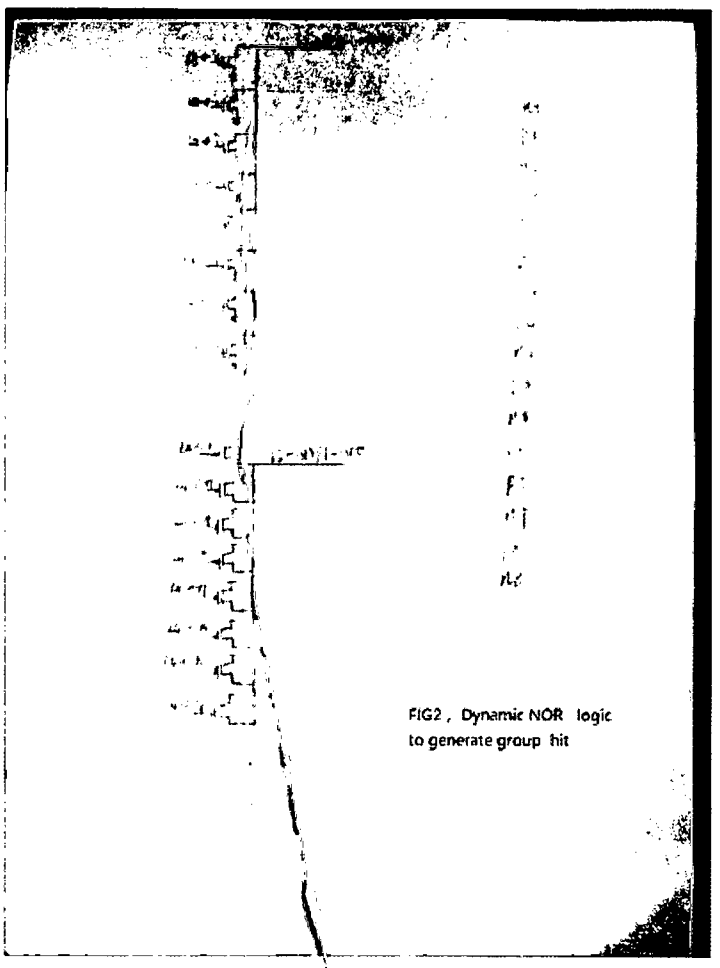


FIG2 , Dynamic NOR logic
to generate group hit

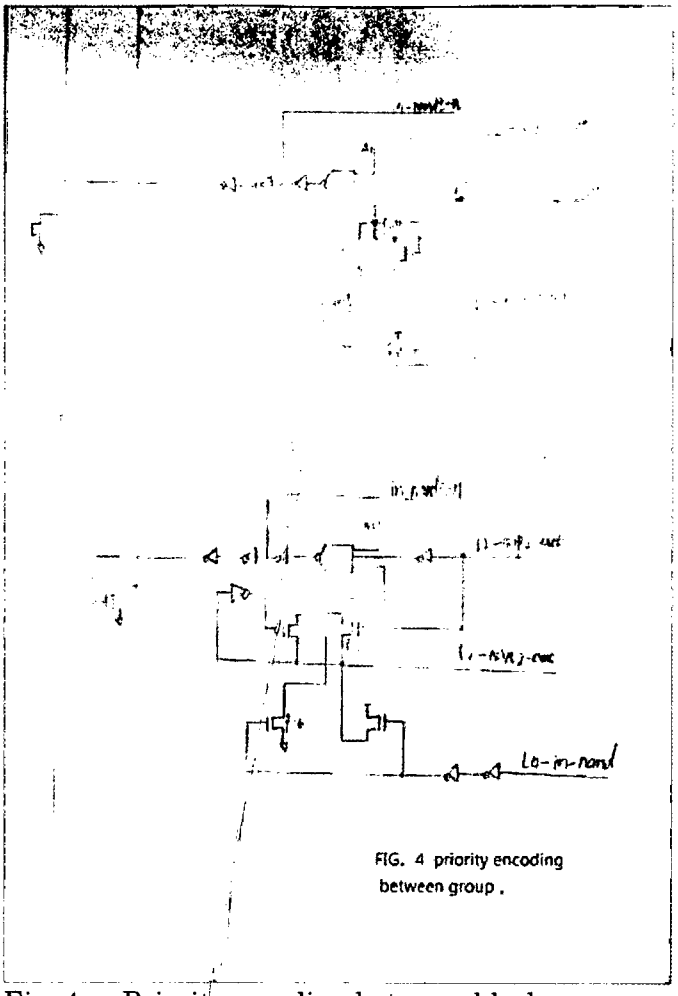


Fig. 4 Priority encoding between blocks within the column.

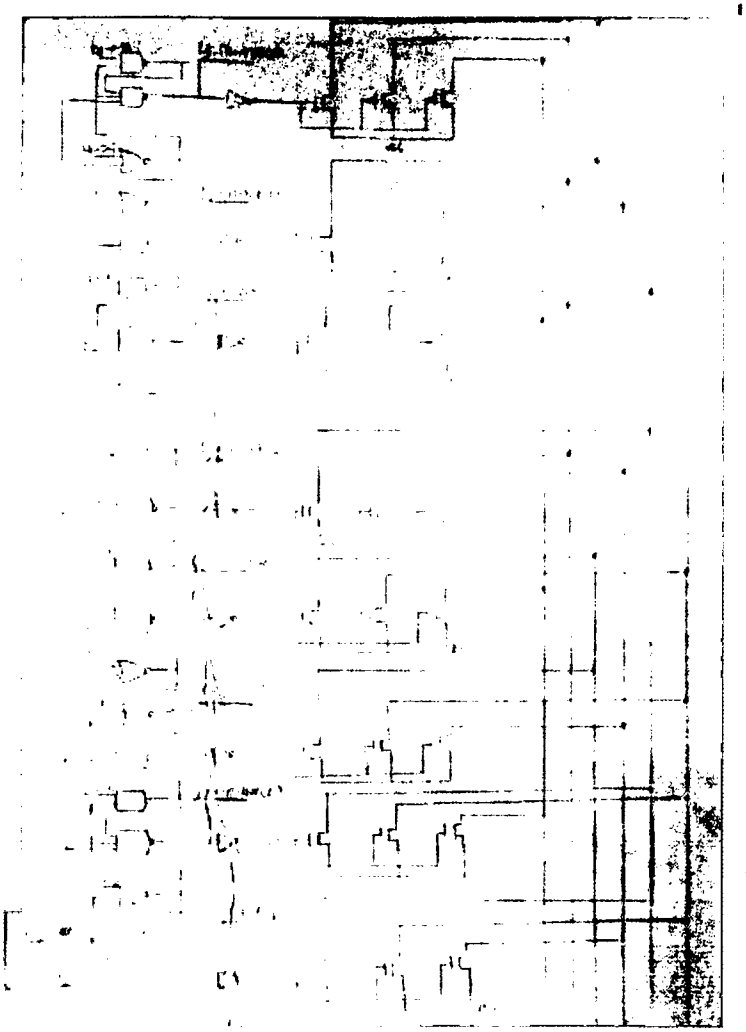


FIG. 5 Priority encoding of each group
(inside each group)

right side is the binary address decoding

Fig.5, priority encoding within each block.

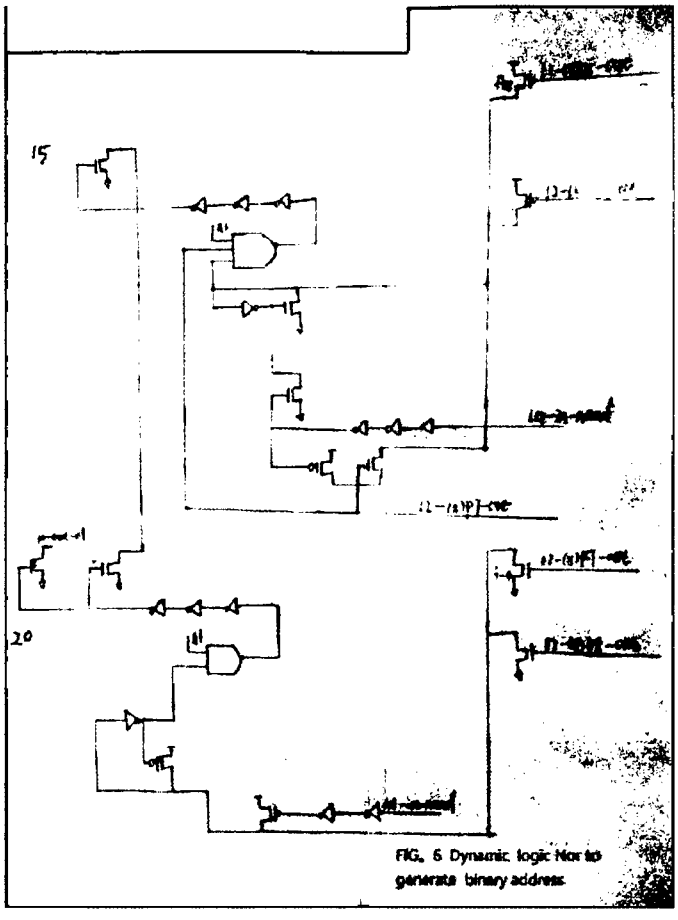


FIG. 6 Dynamic logic NOR to generate binary address

Exhibit M of Dkt.109 of case 2:15-cv-1413

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

DECLARATION OF JANET GUO

I, Janet Guo, declare as follows:

1. My name is Janet Guo and I am a Sales Manager of Customer Account and Sales Division of Cellixsoft Corporation located in Beijing, People's Republic of China.

2. I have personal knowledge of the facts set forth in this Declaration and if called to testify as a witness, I could and would competently testify to them under oath.

3. I have worked for Cellixsoft Corporation for more than the past 6 years as a Manager of Customer Account and Sales Division of Cellixsoft Corporation.

4. As part of my work for Cellixsoft Corporation, I have the records of the chips which Cellixsoft Corporation has done "reverse engineering" for Wuxi Hengyu Micro Electronics Ltd. The chip No. include:

(a) NetLogic MicroSystem 75K72234 S200BL, Corresponding project code: GOF_1102210

(b) NetLogic MicroSystem 75S10005A, Corresponding project code: GOF_1110090

(c) NetLogic MicroSystem 75S10005A, Corresponding project code: GOF_1303150
(d) NetLogic MicroSystem NL 9512 SVH-250I, Corresponding project code: GOF_1403200

The reverse engineering data of the above chips were put in the online FTP directory of Cellixsoft Corporation for download. With the software provided by Cellixsoft Corporation the reverse engineering data of the chips could be viewed in computer to show the each layer layout of the chip photographed by Electronic Microscope.

5. I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed this 8th day of October, 2016 in Beijing, the People's Republic of China

Janet Guo

I N THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

XIAOHUA HUANG, Plaintiff	)	Case No.: 2:15-cv-01413 JRG/RSP
v.	)	
HUAWEI TECHNOLOGIES CO. LTD.	)	DEMAND FOR JURY TRIAL
Defendant.	)	

DECLARATION OF XIAOHUA HUANG REGARDING INFRINGEMENT OF US PATENT NOS RE45259

I, Xiaohua Huang, declare as follows:

1. My name is Xiaohua Huang. From 2000 to present I am the Chairman of CMOS Micro Device Inc. located in 900 E. Hamilton, Room 100, Campbell, California, USA.

2. I have personal knowledge of the facts set forth in this Declaration and if called to testify as a witness, I could and would competently testify to them under oath.

3. In 1995 I graduated with Master Degree of Science at Electrical Engineering Department from University of Southern California, California, USA. From 1993 to 1996 I was a PhD Candidate at Physics Department in University of Southern California.

4. From 1996 to 1998 I worked at Intel Corporation as a Senior Design Engineer, designing embedded SRAM for Intel Pentium CPU

chip, I invented very high speed and low power SRAM design.

5. From 1998 to 1999 I worked at Hal Computer as a Senior Engineer, designing Register File, SRAM for SPARC CPU chip. I made many inventions on high speed and low power logic and circuits used in the SRAM and Register File design.

6. From 2000 to present I worked as a Chairman at CMOS Micro Device Inc. located in Campbell, California. From 2000 to 2001 I invented very high speed and low power ternary content addressable memory (TCAM), the invention have been widely used in networking related chips. The largest application of TCAM would be Artificial Intelligence (AI), the era of AI is coming to us.

7. From 2004 to 2007 I worked at SUN MicroSystems Inc as a Senior Manager, leading the SRAM, TCAM, Register File design for multi-core SPARC CPU design.

8. In 2007 I predicted that the ARM CPU will be the KEY component for mobile phone and computer application. Now all the Smart phone use ARM CPU, the notebook computer will all use ARM CPU to replace Intel CPU soon for low power and longer time battery usage.

Infringement

The Plaintiff has contracted the independent third party company Cellixsoft Corporation to analyzed the Broadcom chips including IDT75K72234, IDT75S10010, IDT75S1005 and NL9512. The analysis Methods are:

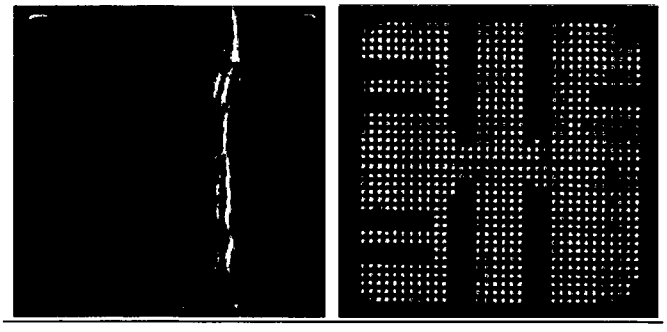
(1) chemically erode the chip layer by layer,

(2) photograph each layer of chip to get the real layout of the chip with Electronic Microscope.

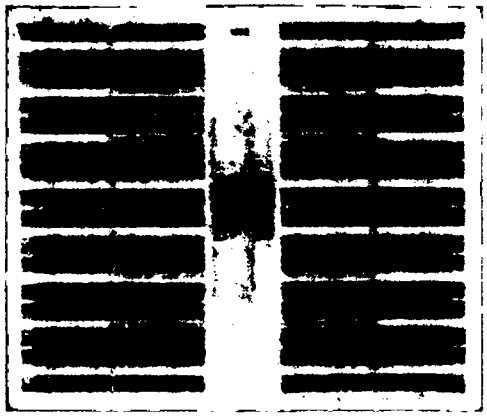
(3) use the software developed by Cellixsoft Corporation to assemble the pictures of every layers and the connection among the layers to get the layout structure of the chip.

(4) With the software of Cellixsoft Corporation the layout structure of the chip could be viewed in the computer.

Exhibit 1. GOF_1102210 (NetLogic 75K72234 S200BL)

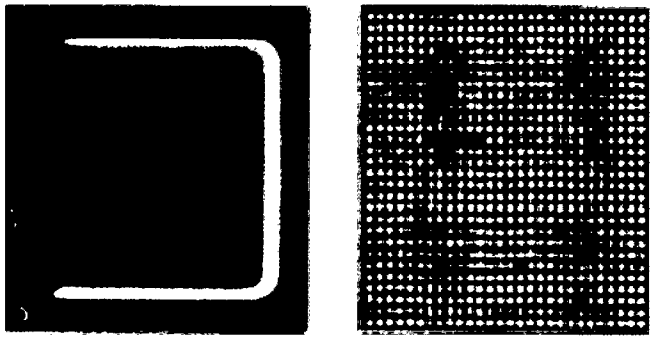


Picture 1. The full chip layout view of front and back side with package

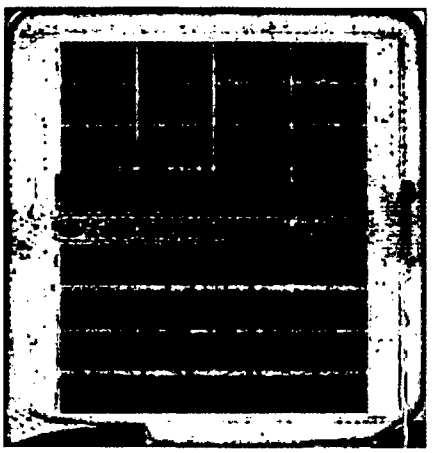


Picture 2 The full chip view in metal 3 layer of GOF_1102210 (NetLogic 75K72234 S200BL) after removing the package and erode the higher metal layer

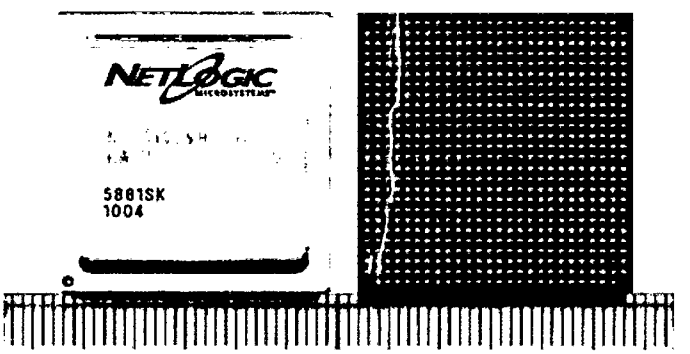
Exhibit 2. GOF_1110090 (NetLogic 75S10005A)



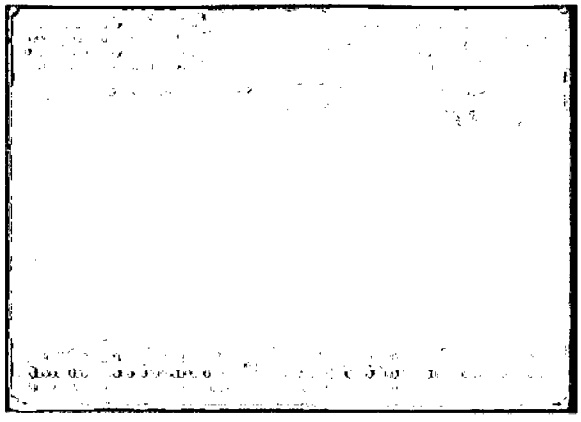
Picture 3 The full chip layout view of front and back side with package



Picture 4. The full chip view in metal 5 layer of GOF_1110090(NetLogic75S10005A) after removing the package and erode the higher metal layer



Picture 7 The full chip layout view of front and back side with package



(1) Extracted priority encoding logic diagram of 512 match input.

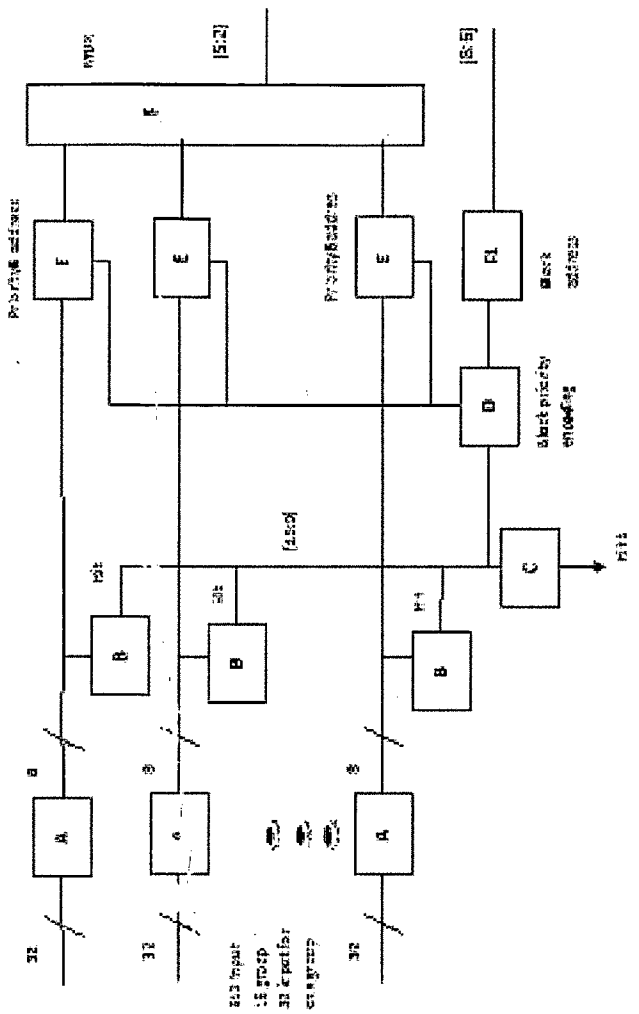


FIG. 1

FIG.1 is a priority encoding logic of 512 match result signal from TCAM. The 512 input signal are divided into 16 block, each block has 32 input, each block is further divided into 8 group, each group has 4 input. In Box A each group generate

a group hit, 8 group generate 8 group hit. Box B 8 group hit generate block hit(Hit), In box C 16 block hit(Hit) generate column hit(Hit1). Box E is the block priority encoder and block address encoder, box D is the priority encoder of column. Box F1 generate the column address and Box F is the MUX.

(2) The Hit generation logic circuit of Box B in FIG1.

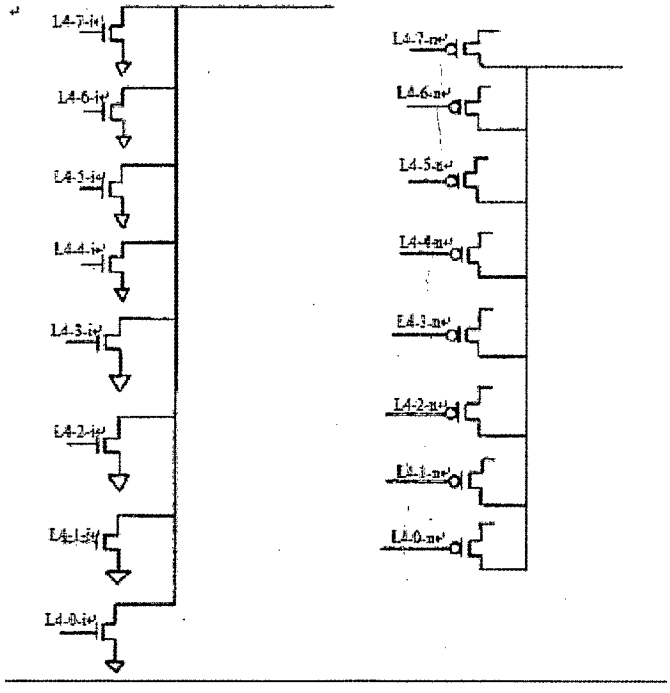
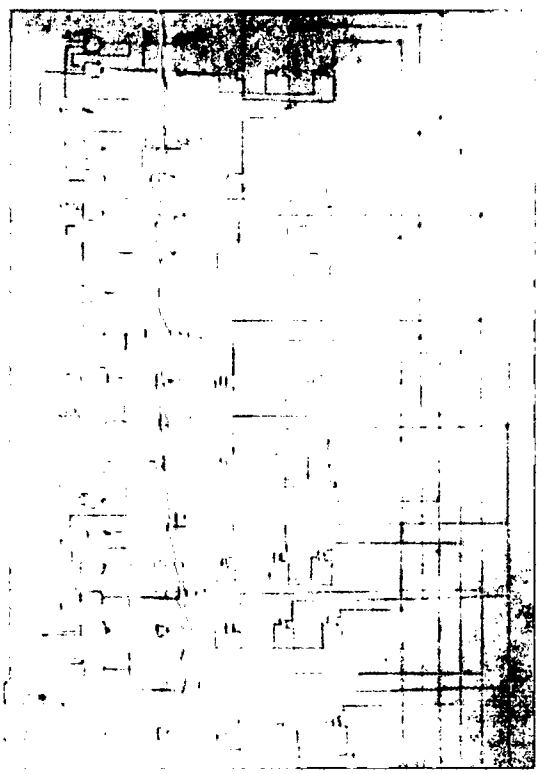


FIG.2 Block Hit generation circuit of Box B in FIG. 1

The left side logic has eight input L4-0-i to L4-7-i, at beginning eight input L4-0-i to L4-7-i are set to be low logic level, all eight N-type transistor is

OFF, the nod out1 is set to high level logic level"1", then when there is at least one input switch to high logic level "1", the node out1 will change to low logic level "0".

(3) Block Priority encoding logic of Box E in FIG. 1 , address generation and MUX of Box F in FIG. 1

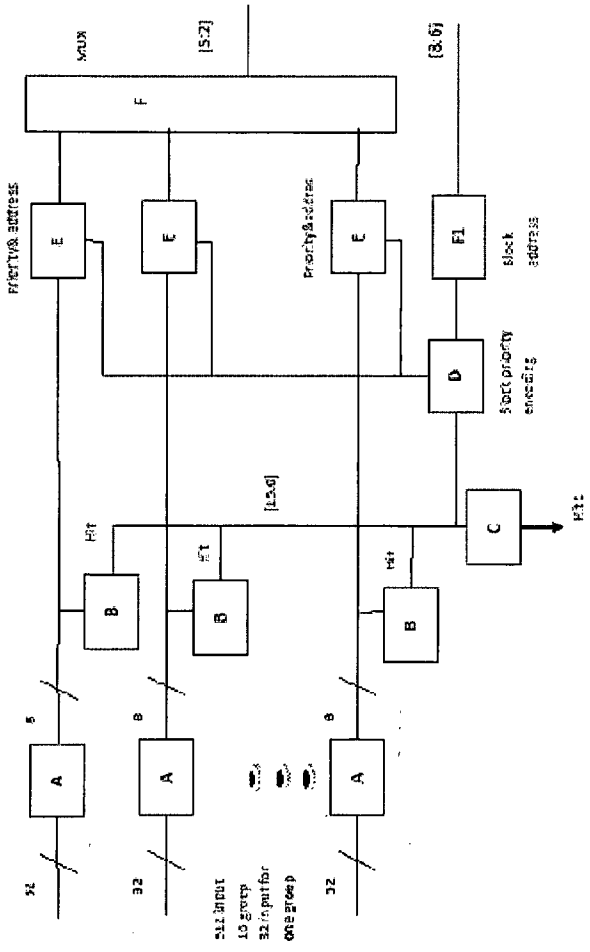


logic level "0".

The FIG.1, FIG.2 and FIG.3 are the selected schematic extracted from the chip layout pictures photographed by Cellixsoft Corporation. The

detailed correspondence between the schematics listed above with the layout pictures will be displayed and demonstrated through the computer supported with the software of Cellixsoft Corporation.

(4) Extracted priority encoding logic diagram of 512 match input.



16 block hit(Hit) generate column hit(Hit1). Box E

is the block priority encoder and block address encoder, box D is the priority encoder of column. Box F1 generate the column address and Box F is the MUX.

(5) The Hit generation logic circuit of Box B in FIG1.

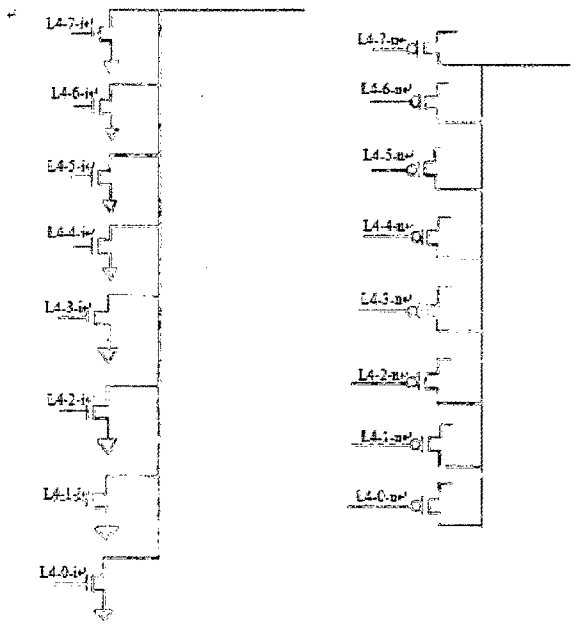
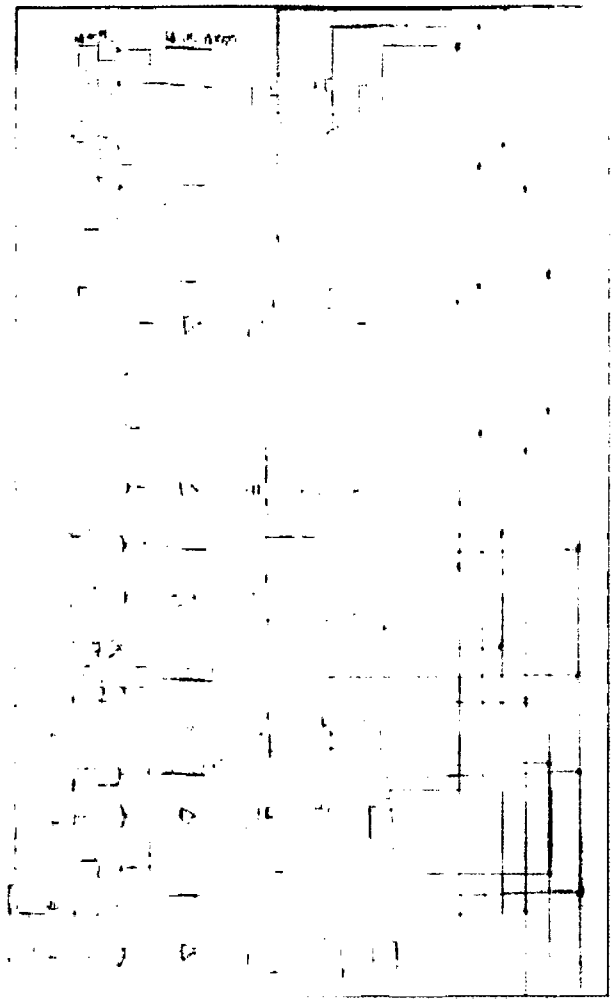


FIG.2 Block Hit generation circuit of Box B in FIG. 1

The left side logic has eight input L4-0-i to L4-7-i, at beginning eight input L4-0-i to L4-7-i are set to be low logic level, all eight N-type transistor is OFF, the nod out1 is set to high level logic level"1", then when there is at least one input switch to high logic level "1", the node out1 will change to low logic level "0".

(6) Block Priority encoding logic and address

encoder of Box E in FIG. 1



transistor are OFF, all the output node of the N-type transistor are set to high logic level "1". Subsequently any input of the N-type transistor switch to high level logic level"1" the corresponding output node of the N-type transistor will become to low logic level "0".

RE45259 Patent Claim 1

A content addressable memory(CAM) and hit ahead priority

encoding (HAPE) logic, comprising: (1) a group of blocks which is arranged in column and row,

(2) each block has equal number of CAM match signals which are the input signals of priority encoding logic,

(3) each block has same priority encoding logic of CAM match signals within the block,

(4) the CAM match signals or input signals are arranged from lower priority to higher priority or from higher priority to lower priority, each CAM match signals or input signal has either high logic level "one" which is called hit or low logic level "zero" which is called miss,

(5) each block generates block hit when there is at least one CAM match signal is high logic "one" within the block or block miss signal when all the CAM match signals are in low logic level "zero" within the block and

(6) block binary address signal corresponding to the CAM match signals of highest priority within the block,

(7) a priority encoding logic of block hit or miss signals of each column, each column generates a column hit signal when there is at least one block hit signal within the column or column miss signal when there is only block miss signals within the column and column binary address corresponding

to the CAM match signals of highest priority within the column,

8) a priority encoding logic of column hit or miss signals of a group column, a group of column generates a hit signal when there is at least one column hit signal within the group column or a miss signal when there is only column miss signals within the group column and a group column binary address corresponding to the CAM match signals of highest priority within the group column.

(1) a group of blocks which is arranged in column and row,

(2) each block generates block hit when there is at least one CAM match signal is high logic "one" within the block or block miss signal when all the CAM match signals are in low logic level "zero" within the block and

This element is shown in FIG.2, each 8 group hit to generate a block hit.

(3) block binary address signal corresponding to the CAM match signals of highest priority within the block,

The portion of FIG.3 in right side shows the block address generation logic.

(4) a priority encoding logic of block hit or miss signals of each column, each column generates a column hit signal when there is at least one block hit signal within the column or column miss signal when there is only block miss signals within the column and column binary address corresponding to the CAM match signals of highest priority

within the column,

FIG.7 shows partial priority encoding logic and partial Hit1 generation logic of 16 block within one column, the complete detailed design will be displayed with the computer.

(5) a priority encoding logic of column hit or miss signals of a group column, a group of column generates a hit signal when there is at least one column hit signal within the group column or a miss signal when there is only column miss signals within the group column and a group column binary address corresponding to the CAM match signals of highest priority within the group column.

This element repeat block priority encoding and column priority encoding, It is Hierarchical Priority Encoding.

The claim1 of RE45259 reads on the Broadcom TCAM chips IDT75K72234, IDT75S10010, IDT75S1005 and NL9512. Those chips have been used in the products of Defendant, so claim1 of RE45259 reads on the products of Defendant.

RE45259 Patent Claim 7

Claim 7 is same as Claim 1 except the grammar correction, so Claim 7 reads on the Broadcom chips, and Reads on the products of Defendant.

US Patent No. RE45259, Claim 13

A content addressable memory (CAM) system, comprising:

(1) one or more columns comprising a

(1) plurality of circuit segments,

at least one of the circuit segments configured to generate a first circuit segment output based on whether at least one of a plurality of circuit segment inputs received by the at least one of the circuit segments corresponds to a first logic level,

(2) at least one of the one or more columns configured to generate first address information based on a selected one of the first circuit segment outputs that corresponds to a second logic level, to set a node to a third logic level in response to a first input signal, and to subsequently change the node to a fourth logic level in response to one or more of a plurality of second input signals.

The logic in left side of FIG.3 is 8 input priority encoding logic. When at least one of eight input is in high logic "1" , only one of the eight inverter output is in high level logic "1" corresponding to the highest priority input logic "1" while all other output of inverter is in low level logic"0". The claim element (1) reads the left side of schematic in FIG.3

The three N-type transistor of each row in the right side of FIG.3 is address encoder and MUX corresponding to Box F in FIG. 1. At beginning every input in very left side are set to

"0", so all the output of inverter are also zero, then all N-type transistor are OFF, all the output node of the N-type transistor are set to high logic level "1". Subsequently any input of the N-type transistor switch to high level logic level"1" the corresponding output node of the N-type transistor will become to low logic level "0". The claim element (2) reads the right side of schematic in FIG.3

The claim13 of RE45259 reads on the Broadcom TCAM chips IDT75K72234, IDT75S10010, IDT75S1005 and NL9512. Those chips have been used in the products of Defendant, so claim13 of RE45259 reads on the products of Defendant.

US Patent No. RE45259, Claim 29

A content addressable memory (CAM) system, comprising:

a circuit segment configured to generate a circuit segment output based on whether at least one of a plurality of circuit segment inputs received by the circuit segment corresponds to a first logic level,

the circuit segment configured to set a node to a second logic level in response to an input signal, and

to subsequently change the node to a third logic level in response to the plurality of circuit segment inputs, the circuit segment output corresponding to said third logic level.

This claim 29 reads on the schematics of.

The claim 29 of RE45259 reads on the Broadcom TCAM chips IDT75K72234, IDT75S10010, IDT75S1005 and NL9512. Those chips have been used in the products of Defendant, so claim29 of RE45259 reads on the products of Defendant.

I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed this 15th day of October, 2016 in Los Gatos, California.

Xiaohua Huang

No. ___ _____

In the
Supreme Court of the United States

IN RE Xiaohua Huang's patent
infringement litigation

Xiaohua Huang *pro se*
Petitioner

V.

Huawei Technology Ltd.
Respondents

On Writ of Certiorari to the United States Court of Appeals for the Federal Circuit and the US District Court of Eastern Texas

CERTIFICATE OF SERVICE
for
APPENDIX of PETION FOR A WRIT OF CERTIORARI

Xiaohua Huang pro se
P.O. Box 1639, Los Gatos, CA95031
Tel: (669) 273 5650
xiaohua_huang@hotmail.com

CERTIFICATE OF SERVICE

Pursuant to Rule 29.5 of the Rules of this Court, I certify that all parties required to be served have been served. On March 27, 2019, I caused 3 stapled copies of Petition appendix for a Writ of Certiorari to the United States Court of Appeals for the Federal Circuit to be Served by first-class mail and also emailed an electronic copy.

Xiaohua Huang