



Quality Insights

Patentcloud Quality Insights Annotation Report

Elite Gaming Tech LLC v. Marvell International, Ltd. et al
EDTX-2-21-cv-00335

Focus on: U.S. Pat. No. 6,963,947

Filing date: Aug. 27, 2021

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Map claims to specification and file wrapper

Map claims to specification - '947

Which claim terms are or are not in the specification?

Claim Analysis > Claim# 1

Find relevant specification content as intrinsic evidence for claim term interpretation

12 Terms Identified in This Claim

[Click to Select Terms](#)


Select Text

Highlight text from within the claim with your cursor and click on the tooltip "Select Terms" to find references in the Specification.

Claim# 1

A bridge driver adapted to permit communication from a first communication bus to a second communication bus via a bridge, the bridge driver being adapted to rebalance a multi-level PCI bridge based computer system.

Select Terms

 **Claim Analysis finds** these terms in the spec: "permit communication", "communication bus", "multi-level PCI bridge", as well as other terms that are highlighted in red.

Map claims to specification - '947

Which claim terms are or are not in the specification?

Claim Analysis > Claim# 1

Find relevant specification content as intrinsic evidence for claim term interpretation

12 Terms Identified in This Claim [Click to Select Terms](#)

Select Text

Highlight text from within the claim with your cursor and click on the tooltip "Select Terms" to find references in the Specification.

Claim# 1

A bridge driver adapted to permit communication from a first communication bus to a second communication bus via a bridge,

the bridge driver being adapted to rebalance a multi-level PCI bridge based computer system.

Select Terms

Review the selected claim element and see how it is defined in the patent specification and related figures.

Selected elements of '947 Claim 1

Selected elements of Claim '947 in Spec

Figures of '947

Select Text

multi-level PCI bridge

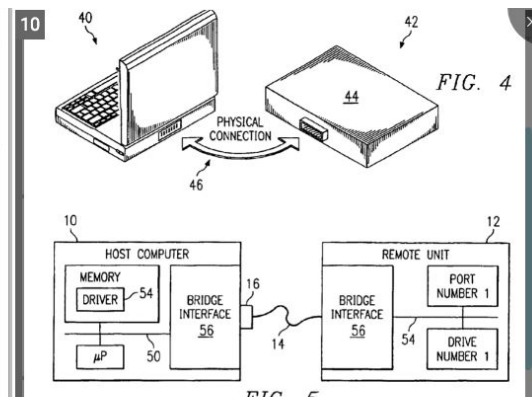
The selected clause includes the following keywords:

- PCI** (9)
- multi-level** (5)
- bridge** (20)

Content

[0019] FIG. 5 is a block diagram of a multi-level bridge implementation, including a serial PCI-to-PCI and PCI-to-CardBus bridge, creating multiple PCI buses providing the expansion shown in FIG. 1.

[0014] Multi-level bridge configurations may occur in a variety of implementations. As additional bridge's could also be added creating many levels of hierarchy the higher hierarchical level bridge will be called the parent and the bridge residing on its secondary bus will be called the Target Bridge. When expansion interfacing is accomplished through the PC Card slot, such as on portable computers, the driver of the present invention is configured as a lower filter for Parent CardBus Bridge. The driver may also be configured as an upper filter for the Target PCI Bridge operating behind the CardBus



Map claims to specification and Complaint - '947

Does the allegedly infringing product element fall within or outside the patent's scope?

Select Text

multi-level PCI bridge

The selected clause includes the following keywords:

PCI (9)

multi-level (5)

bridge (20)

Content

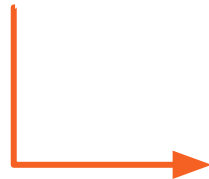
[0019] FIG. 5 is a block diagram of a multi-level bridge implementation, including a serial PCI-to-PCI and PCI-to-CardBus bridge, creating multiple PCI buses providing the expansion shown in FIG. 1.

[0014] Multi-level bridge configurations may occur in a variety of implementations. As additional bridges could also be added creating many levels of hierarchy the higher hierarchical level bridge will be called the parent and the bridge residing on its secondary bus will be called the Target bridge. When expansion interfacing is accomplished through the PC Card slot, such as on portable computers, the driver of the present invention is configured as a lower filter for Parent CardBus Bridge.

✍ With the claim scope interpretation from **Claim Analysis**, verify your findings against the complaint.

Answer the question:

Does the alleged Invention element fall within or outside the patent's scope?



17. Defendants have and continue to directly infringe at least claim 1 of the '947 Patent by making, using, offering to sell, selling, and/or importing into the United States chips including, but not limited to SoCs, further including but not limited to Marvell Oction and Armada SoCs, that contain a bridge driver adapted to permit communications from a first communication bus to a second communication bus via a bridge. Upon information and belief, these bridge drivers are adapted to rebalance a multi-level PCI bridge-based computer system such as, for example, communications systems based on internal busses and external busses, such as the peripheral communication interface (PCI) bus, the advanced communications buss (ACB), and the PCI express bus (PCIe).

Map claims to the file wrapper - '947

Which claim terms are in the file wrapper(i.e. examiner's opinion) ?

Disclosure Rate by Prior Art

Claims	Disclosure by Single Reference		Disclosure by Multiple References	
	Prosecution History	Post-Grant	Prosecution History	Post-Grant
<input checked="" type="checkbox"/> #1	75%	0%	75%	0%
<input checked="" type="checkbox"/> #2	50%	0%	50%	0%
<input type="checkbox"/> #3	50%	0%	50%	0%
<input type="checkbox"/> #4	50%	0%	50%	0%

Confirm

Review how the asserted claims were disclosed by the prior art found by the examiner during prosecution and post-grant proceedings.

A higher percentage means more claim elements were disclosed by the prior art.

Claim Insights Summary Table > Claim Table (Claim# 1) | Select A Claim 1 2 **switch between claims**

How is each claim element disclosed by cited prior art? Click numbers to find detailed comparison.

i The percentage "%" indicates how many keywords in an element being disclosed by a specific references.
[Click to find comprehensive explanation of calculation.](#)

All **Prosecution history** **Post-Grant** ☐ Responded prior arts only

Claims	Prior Art Ref. (3)	
	US6189050	OTHER REFERENCE
#1.01 (75%)	75%	75%
#1.02 (100%)	100%	100%

Disclosure Rate by Prior Art

Map claims terms to the file wrapper - '947

Why was this patent granted? Which claims were amended and how did the scope change?

Claim Insights Summary Table > Claim Table (Claim# 1) | Select A Claim 1 2

How is each claim element disclosed by cited prior art? Click numbers to find detailed comparison.

The percentage "%" indicates how many keywords in an element being disclosed by a specific references. Click to find comprehensive explanation of calculation.

☒ Prosecution History ☐ Post-Grant ☐ Responded prior arts only

Claims	Prior Art Ref. (s)	
	US6189050	OTHER REFERENCE
#1.01 (75%)	75%	75%
#1.02 (100%)	100%	100%

All of the limitations of this asserted claim element in '947 were 100% known by Sakarda (US6189050).

Answer the questions:

Why was this patent granted?

Claim Insights Summary Table > Claim Table (Claim# 1) > Claim Element Page (Claim# 1.02) > US6189050 | Select A Claim 1 2

Side-by-side comparison; Claim terms not found may imply the reasons for patentability.

Rejection from Examiner

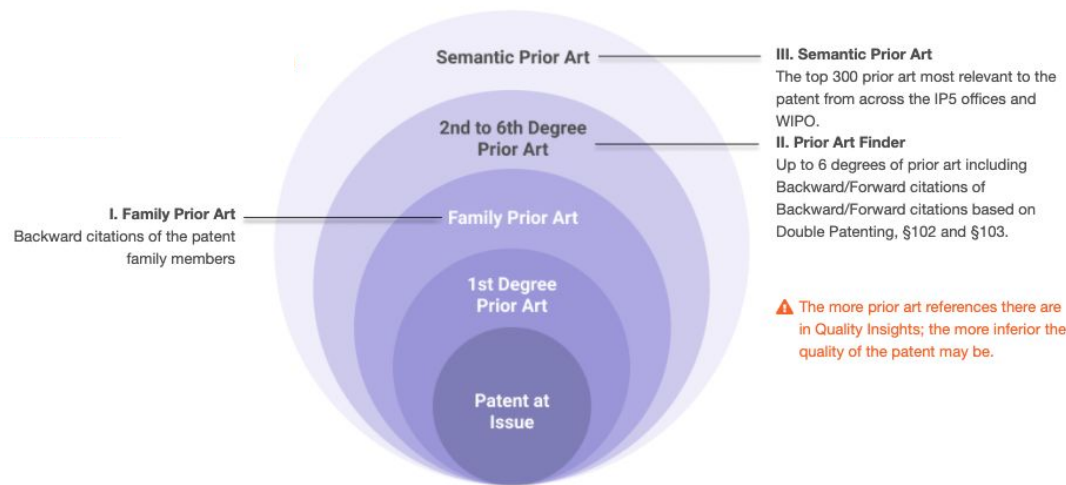
Find 2 Result(s)

1.01 1.02

Claim Element	Prior Art Ref.	Sakarda [US6189050]	Oshins [otherreference]
#1.02 the bridge driver being adapted to rebalance a multi-level [PCI] bridge based computer system .	<p>Rejection</p> <p>5.</p> <p>claims 1-4 and 12 are rejected under 35 u.s.c. 103(a) as being unpatentable over sakarda in view of oshins et al., us .. pat .. application publication 2002/0170951 a1.</p> <p>as per claim 1, sakarda shows a bridge driver adapted to permit communication from a first bus(130) to a second bus(135) via a bridge(134 which inherently contains a bridge driver for controlling its operations).</p> <p>sakarda does not specifically show that the bridge driver is adapted to rebalance a multi-level [PCI] bridge based computer system, however sakarda does show a multilevel pci bridge based system at least in figure 2.</p> <p>oshins et al. shows rebalancing devices in a pci bus based system in order to resolve resource conflicts among the pci devices[see paragraphs[0004],[0007],[0031], and[0049-0050]].</p>		

20040914-CTER Prosecution History 35 U.S.C. § 103

How does Quality Insights generate prior art?



Prior Art Finder

Prior Art Finder for '947

Review cited and citing patents of '947 from the first to the sixth degree

Filter by:

- Applicability
- Legal Basis (§102 or §103)
- Patent Office
- Legal Status

1st Degree Art

1

2nd Degree Art

6

N Degree Art

59

N Degree Art

Extend forward/backward citations from the Second Degree Art

Discover prior art's similarity with claim chart format in seconds !

KEEP Mode

Ranked By : Legal Basis (§102 first) |



US6963947B2

6th Degree List

	#	Patent No.	Title	Legal Status	Appl. Date	Pub./Issue Date	Assignee (Std)	Applicability
<input type="checkbox"/>	1	US7778595B2	Method for managing media	Expired	2008-01-16	2010-08-17	AFFINITY LABS OF TEXAS L...	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>	2	US7187947B1	System and method for communicating sel...	Lapsed	2000-03-28	2007-03-06	AFFINITY LABS LLC	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>	3	US20100017543A1	METHOD AND APPARATUS FOR DYNAMIC ...	PGPub - Granted	2009-06-11	2010-01-21	MEDIUS INC	(Pre-AIA) § 102(e)(1)
<input type="checkbox"/>	4	US20110312386A1	System And Method For Communicating M...	PGPub - Granted	2011-03-21	2011-12-22	IMES KEVIN R	+1 (Pre-AIA) § 102(e)(1)

Up to 6th
Degree Prior
Art List

Family Prior Art

Family Prior Art of '947

Review prior art cited by and cited against the family counterparts when available

Simple Family

1

Backward Citation: Patent

17

Backward Citation: Non-Patent Literature

1

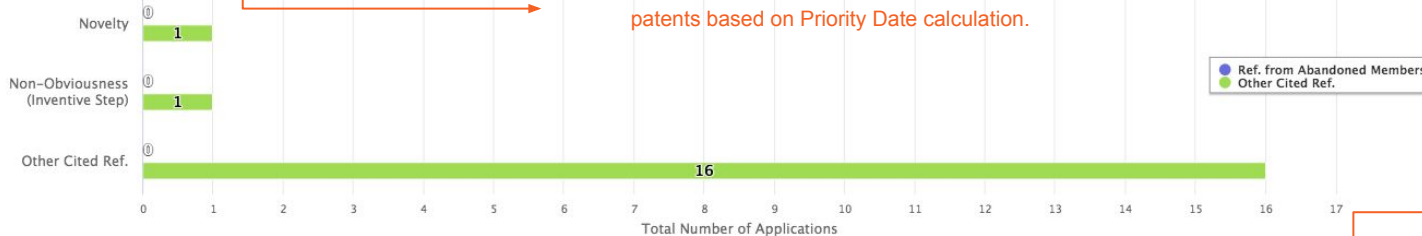
Click on Cited Patents for Potential Prior Art

Backward Citation: Patent

Categorized to indicate relevance; You can start from applicable references cited as novelty prior art

All References (17)

Applicable Only (17)



Prior Art List

KEEP Mode

Ranked By : Appl. Date |

<input type="checkbox"/>	#	Patent No.	Title	Legal Status	Appl. Date	Pub./Issue Date	Assignee (Std)	Applicability
<input type="checkbox"/>	1	US5006981A	System bus expansion for coupling multim...	Lapsed	1988-11-08	1991-04-09	JENOPTIK JENA GMBH	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b) (Pre-AIA) § 102(e)(2)
<input type="checkbox"/>	2	US5191657A	Microcomputer architecture utilizing an asy...	Expired	1989-11-09	1993-03-02	AST RESEARCH INC	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b) (Pre-AIA) § 102(e)(2)
<input type="checkbox"/>	3	US5524252A	Personal computer system combined with ...	Lapsed	1991-04-19	1996-06-04	IBM CORP	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b) (Pre-AIA) § 102(e)(2)

Semantic Prior Art

Semantic Prior Art of '947

Review potential prior art ranked by concept similarity

Semantic Prior Art

Most Relevant IP5 & WO 300 prior art references based on [Semantic Similarity](#) among the first claims and abstracts.

[Change Scope](#)

Select claim text or enter the desired text/keywords

Discover prior art's similarity with claim chart format in seconds ! Prior art references found (within the designated scope) that are

deemed as having high semantic similarity will be starred with a ★

KEEP Mode 10 are of high semantic similarity

Ranked By : Relevance

<input type="checkbox"/>	<input type="checkbox"/>	Ranking	Patent No.	<input type="checkbox"/>	★ Title	Legal Status ?	Appl. Date	Pub./Issue Date	Assignee (Std)	Applicability
<input type="checkbox"/>		1	US6425033B1	<input type="checkbox"/>	★ System and method for connecting periphe...	Expired	1998-06-05	2002-07-23	NATIONAL INSTRUMENTS ...	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		2	US6457091B1	<input type="checkbox"/>	★ PCI bridge configuration having physically s...	Expired	1999-05-14	2002-09-24	KONINKLIJKE PHILIPS NV	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		3	WO2000/070475A1	<input type="checkbox"/>	★ PCI BRIDGE CONFIGURATION HAVING PHY...	PCT End - NP	2000-02-22	2000-11-23	PHILIPS ELECTRONICS NO...	(Pre-AIA) § 102(a)
<input type="checkbox"/>		4	US20020016862A1	<input type="checkbox"/>	★ Method for configuring peer-to-peer bus bri...	PGPub - Granted	2001-08-10	2002-02-07	PORTERFIELD A KENT	(Pre-AIA) § 102(e)(1)
<input type="checkbox"/>		5	US20020016877A1	<input type="checkbox"/>	★ Computer system having peer-to-peer bus ...	PGPub - Granted	2001-08-14	2002-02-07	PORTERFIELD A KENT	(Pre-AIA) § 102(e)(1)
<input type="checkbox"/>		6	US6195717B1	<input type="checkbox"/>	★ Method of expanding bus loading capacity	Expired	1997-10-01	2001-02-27	MICRON ELECTRONICS INC	(Pre-AIA) § 102(a) (Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		7	US6275888B1	<input type="checkbox"/>	★ Method for configuring peer-to-peer bus bri...	Expired	2000-03-13	2001-08-14	MICRON TECHNOLOGY INC	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		8	US6249834B1	<input type="checkbox"/>	★ System for expanding PCI bus loading capa...	Expired	1997-10-01	2001-06-19	MICRON TECHNOLOGY INC	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		9	US6418504B2	<input type="checkbox"/>	★ System and method for coupling peripheral...	Expired	2001-06-06	2002-07-09	NATIONAL INSTRUMENTS ...	(Pre-AIA) § 102(e)(2)
<input type="checkbox"/>		10	US5838935A	<input type="checkbox"/>	★ Method and apparatus providing programm...	Abandoned	1995-12-29	1998-11-17	INTEL CORP	(Pre-AIA) § 102(a) (Pre-AIA) § 102(b)

Semantic Prior Art of '947

Review potential prior art ranked by concept similarity

US6963947B2 [🔗](#)

Driver supporting bridge method and apparatus

[Overview](#)

[History](#)

[Claim Analysis](#)

[Claim Insights](#)

[Family Prior Art](#)

[Prior Art Finder](#)

Semantic Prior Art

[File Wrapper Search](#)

[About Semantic Prior Art](#)

Semantic Prior Art

Most Relevant IP5 & WO 300 prior art references based on [Semantic Similarity](#) within the scope below. [Reset to Default](#)

Enter text to start searching for semantic prior art (English only)

[+ Add text from claims](#)

[Submit](#)

[Discover prior art's similarity with claim chart format in spreadsheet](#)

[Add text from claims](#)

[✕](#)

Select A Claim

1

2

3

4

5

6

7

8

9

10

[Next 10](#)

A bridge driver adapted to permit communication from a first communication bus to a second communication bus via a bridge, the bridge driver being adapted to rebalance a multi-level PCI bridge based computer system.

[Add](#)



adding text from claims to find more related Prior Art

Comparison tools

Prior Art Comparison (claim chart format)

What does this prior art say about the critical elements?

→ Disclosure Rate of Prior Art

1.01
1.02

Find **30** Result(s) | Disclosure Rate: 40%

Claim Element

#1.02 the bridge driver being adapted to rebalance a multi-level PCI bridge based computer system.

Keyword List ⓘ

- computer system (31) FW PA
 - computer systems
 - Computer System
- pci bridge (25) FW PA
 - PCI bridge
 - PCI bridges
- bridge driver (0) FW
- rebalance (0) FW
- multi-level (0) FW

US6418504B2 Content

Abstract

A Wide Area Serial PCI system for connecting peripheral devices to a computer . The WASP system includes a host computer system connected through a serial bus to a remote device . The serial bus can range from several meters to several kilometers or more . The host computer system includes a CPU and memory , and also includes a first Peripheral Component Interconnect (PCI) bus , also referred to as the local PCI bus . A primary bridge according to the present invention is coupled to the first PCI bus . The primary bridge includes PCI interface circuitry for interfacing to the first PCI bus . The remote device is located remotely from the computer system and comprises a second or remote PCI bus and one or more peripheral devices coupled to the second PCI bus . The remote device also includes a secondary bridge coupled to the second PCI bus . The secondary bridge includes PCI interface circuitry for interfacing to the second PCI bus . The serial bus is coupled between the primary bridge and the secondary bridge . Each of the primary bridge and secondary bridge include parallel / serial transceivers for converting parallel data generated on the first PCI bus and second PCI bus , respectively , to serial data for transmission on the serial bus and for converting serial data received from the serial bus to parallel data for generation on the first PCI bus and second PCI bus , respectively . The primary bridge and the secondary bridge collectively implement a PCI -- PCI bridge register set .

Claims

Claim# 1 A system for coupling one or more peripheral devices to a computer , comprising : a computer system , wherein the computer system includes a CPU and memory , wherein the computer system includes : a first Peripheral Component Interconnect (PCI) bus ; and a first interface coupled to the first PCI bus , wherein the first interface includes PCI interface circuitry for interfacing to the first PCI bus ; a remote device located remotely from the computer system , the remote device comprising : a second PCI bus ; one or more peripheral devices coupled to the second PCI bus ; and a second interface coupled to the second PCI bus , wherein the second interface includes PCI interface circuitry for interfacing to the second PCI bus ; a serial bus coupled between the first interface and the second interface , wherein the serial bus includes first and second ends , wherein the first end of the serial bus is coupled to the first interface and the second end of the serial bus is coupled to the second interface ; wherein each of the first interface and the second interface include parallel / serial transceivers for converting parallel data generated on the first PCI bus and second PCI bus

Answer the question:

What does this prior art say about the Claim elements: “pci bridge” ?

Discover prior art similarity with keywords (includes keyword stemming) mapped to the selected prior art reference Abstract, Claims, and Specification.

Prior Art Comparison (sample output)

Easily generate a table like below

Claim		Claim-Term Interpretation	Semantic Prior Art - '504	3rd Degree Citation Prior Art - B
1	A bridge driver adapted to permit communication from a first communication bus to a second communication bus via a bridge,	Refer to Claim Analysis results	40%
	the bridge driver being adapted to rebalance a multi-level PCI bridge based computer system.	40%

System-identified keywords and key phrases
(highlighting of other keywords is available)

Results from claim to
specification and file
wrapper mapping

Results from prior art comparison by
claim element

Prior Art downloads

Prior Art downloads

Select all

Export

#	Patent No.	Title
1	CN1247662A	Dual use spe
2	EP0998105B1	Mobile teleph
3	JPH09-036932A	EXTERNAL R
4	JPH11-055358A	MOBILE RAD
5	US5317622	Ringin circuit for use in a telephone set f...



Download patent data in Excel or PDF format for Family Prior Art, Second Degree Prior Art, and/or Semantic Prior Art.

Prosecution and PTAB History

Key Events

Key Events - '947

1 Prosecution & 0 Post-Grant

Event History

1

Family Status

1 Applications

Prior Art Status

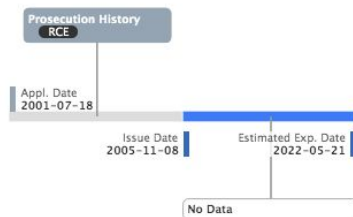
390 Applications / **2** NPL References

Event History | **1** Prosecution History / **0** Post-Grant

Validity challenges to a patent in its prosecution history and post-grant events

of Family Counterparts and Legal Status

of Highly Relevant Prior Art References



Legend	
Document Code	Document Description
CTFR	Final rejection
CTNF	Non-final rejection
CLM	Claims
REM	Remarks

Timeline of Prosecution:



Key Events - '947

Prosecution History

09/908255 Prior Art Ref. | 2 Ref.

Check prior art cited and the legal basis of these challenges

Double Patenting

0 Ref.

§ 102

1 Ref.

[US6189050](#)
Sakarda

§ 103

2 Ref.

[US6189050](#) (1st)
Sakarda other reference
Oshins

Summary of 09/908255 History | 10 Event(s)

Clickable events for original OAs and their OCR version when available.

Data Last Updated on: 2021-01-29

Descriptions (Code)	Date	Prior Art Ref.
Notice of Allowance (NOA)	2005-05-10	
Notice of Allowance (NOA)	2005-05-10	
Request for Continued Examination (RCEX)	2005-03-17	
Applicant Arguments/Remarks Made in an Amendment (REM)	2005-03-17	
Claims (CLM)		
Applicant Arguments/Remarks Made in an Amendment (REM)	2005-02-28	
Final Rejection (CTFR)	2004-09-14	Grounds 2 ^
Legal Basis	Claims	Prior Art Ref.
35 U.S.C. § 103	claim 1,2,3,4,12	Sakarda US6189050 (1st) Oshins (other reference)
35 U.S.C. § 112	claim 1,2,3,4,5,6,7,8,9,10,11,12	

Direct links to Grounds,
Claims Highlighted and Prior Art Details

Prosecution and PTAB History Search

Patent File Wrapper Search

 Directly discover details in the prosecution history and post-grant proceeding across all documents via a keyword search.

Cross-Document Search

Enter keyword to find documents including specific legal basis or specific claim terms

[① About File Wrapper Search](#)

touch sensor



Rejections, Remarks, and Notice of Allowance in Prosecution History | 13 Records

<input type="checkbox"/> Descriptions (Code) 	Party	Date 
<input type="checkbox"/> Notice of Allowance (NOA)	USPTO	2015-09-24
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2015-06-19
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2015-03-19
<input type="checkbox"/> Request for Continued Examination (RCEX)	Applicant	2015-03-03
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2015-03-03
<input type="checkbox"/> Final Rejection (CTFR)	USPTO	2014-11-03
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-10-15
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2014-07-15
<input type="checkbox"/> Request for Continued Examination (RCEX)	Applicant	2014-06-26
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-06-26
<input type="checkbox"/> Final Rejection (CTFR)	USPTO	2014-02-26
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-02-07
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2013-11-07

Data Last Updated on 2021-04-08


Prosecution and PTAB History PDF Downloads


PDF Downloads

 Download the complete set or just part of the PDF files in the File Wrapper Search.



Cross-Document Search

Enter keyword to find documents including specific legal basis or specific claim terms



Rejections, Remarks, and Notice of Allowance in Prosecution History | 13 Records 

[About File Wrapper Search](#)

<input type="checkbox"/> Descriptions (Code) 	Party	Date 
<input type="checkbox"/> Notice of Allowance (NOA)	USPTO	2015-09-24
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2015-06-19
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2015-03-19
<input type="checkbox"/> Request for Continued Examination (RCEX)	Applicant	2015-03-03
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2015-03-03
<input type="checkbox"/> Final Rejection (CTFR)	USPTO	2014-11-03
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-10-15
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2014-07-15
<input type="checkbox"/> Request for Continued Examination (RCEX)	Applicant	2014-06-26
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-06-26
<input type="checkbox"/> Final Rejection (CTFR)	USPTO	2014-02-26
<input type="checkbox"/> Applicant Arguments/Remarks Made in an Amendment (REM)	Applicant	2014-02-07
<input type="checkbox"/> Non-Final Rejection (CTNF)	USPTO	2013-11-07

Data Last Updated on 2021-04-08

Prosecution and PTAB History Side-by-side PDF and OCR

Side by Side: PDF & OCR



Conduct a keyword search in a single document to identify the claim scope quickly and easily. You can even search additional claim terms within rejections.

Keywords (2)

Select a Keyword Set

☐ sensor (23)

☐ flexible substrate (1)

+ Add new keyword

U992631182 - CTNF (2015-03-19)

13/284,674 6 / 18 90%

Application/Control Number: 13/284,674 Page 5
Art Unit: 2867

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the touch panel taught by Grant by adding drive or sense electrodes made of flexible conductive material as taught by Hotelling since the sensor traces provide level shifting from a low voltage level to a higher voltage level, thus providing a better signal-to-noise ratio for improved noise reduction purposes while the drive traces provide shielding for the sense traces.

Neither Grant nor Hotelling specifically teach wherein the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection.

However, Gray does teach wherein the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection (Fig. 2; [0063]: **A number of conductors forming rows and columns of a conductive pattern (e.g., indium tin oxide (ITO)) may be deposited on a substrate composed of polyester or other material on one or more layers of the touchscreen... the row and column oriented conductors may be disposed on the same layer...**; See also Miller US 5,089,672; Col. 2, lines 11-16; Col. 5, lines 1-20; Col. 5, lines 61-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Grant and Hotelling by including the conductive lines (rows and columns) taught by Gray for the purpose of "providing paths for signals traveling through the touchscreen" (See Gray; Abstract).

103(a) as being unpatentable over Grant et al. US 2008/0303782 A1 (previously cited and
... PAGE 5 ...

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hereinafter Grant) in View of Hotelling et al. US 2008/0158183 A1 (previously cited and hereinafter Hotelling), in further View of Gray et al. US 2010/0045814 (previously cited and hereinafter Gray) and in further View of Frey et al. US 2009/0219257 (newly cited and hereinafter Frey).

Regarding claim 1, Grant does teach an apparatus (Abstract) comprising:
a substantially flexible substrate (Abstract: flexible touch sensitive surface); and
a touch [0003], [0005], [0006], [0022], [0023], [0027], and [0071], e.g., flexible surface, flexible circuitry, and capacitance touch [0003] which must be conductive to receive user input) disposed on the substantially flexible substrate (see at least Figs. 1A-1C; [0009-0011], configured to bend with the substantially flexible substrate (Figs. 1A-1C, 3 and the corresponding descriptions; [0003]).

Grant does not specifically teach the touch [0003] comprising drive or sense electrodes made of flexible conductive material.

However, Hotelling does teach a touch [0003] (Fig. 2a, 5 and the corresponding descriptions, and the Summary of the Invention, i.e., a touch [0003] comprises of row and column traces made of copper) comprising drive or sense electrodes (see at least Figs. 1 and 2a; [0008, 0030-0033]; claim 9; sense traces formed on a first side of a dielectric substrate; and drive traces formed on a second side of the substrate) made of flexible conductive material ([0008]; traces made of copper or other highly conductive metals running along the edge of the substrate).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the touch panel taught by Grant by adding drive or sense electrodes made of flexible conductive material as taught by Hotelling since the [0003] traces provide level shifting from a low voltage level to a higher voltage level, thus providing a better signal-to-noise ratio for improved noise reduction purposes while the drive traces provide shielding for the sense traces.

Neither Grant nor Hotelling specifically teach wherein the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection.



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