AO 120 (Rev. 08/10)

TO:	**Mail Stop 8** **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF FLEXIWORLD TECHNOLOGIES, INC.,		DEFENDANT HISENSE CO., LTD., et al.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,609,402	10/27/2009	Flexiworld Technologies, Inc.
2	10,140,072	11/27/2018	Flexiworld Technologies, Inc.
3	10,140,073	11/27/2018	Flexiworld Technologies, Inc.
4	10,387,087	8/20/2019	Flexiworld Technologies, Inc.
5	10,768,871	9/8/2020	Flexiworld Technologies, Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Tennessee on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT Western District of Tennessee
PLAINTIFF Flexiworld Technologies, Inc..,		DEFENDANT Brother Industries (U.S.A.), Inc.,

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,609,402	10/27/2009	Flexiworld Technologies, Inc.,
2	10,140,073	11/27/2018	Flexiworld Technologies, Inc.,
3	10,481,846	11/19/2019	Flexiworld Technologies, Inc.,
4	10,761,791	9/1/2020	Flexiworld Technologies, Inc.
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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DECISION/JUDGEMENT

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Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Kentucky on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
5:22-cv-098-DCR	04/15/2022	Eastern District of Kentucky

PLAINTIFF	DEFENDANT
Flexiworld Technologies, Inc..,	Lexmark International, Inc.,

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,609,402	10/27/2009	Flexiworld Technologies, Inc.,
2	10,140,073	11/27/2018	Flexiworld Technologies, Inc.,
3	10,481,846	11/19/2019	Flexiworld Technologies, Inc.,
4	10,761,791	9/1/2020	Flexiworld Technologies, Inc.
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Central District of California on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
SACV 21-00807 AB (DFMx)	4/29/2021	Central District of California

PLAINTIFF	DEFENDANT
Flexiworld Technologies, Inc.,	Epson America, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,609,402	10/27/2009	Flexiworld Technologies, Inc.,
2	8,630,000	1/14/2014	Flexiworld Technologies, Inc.,
3	9,036,181	5/19/2015	Flexiworld Technologies, Inc.,
4	10,037,178	7/31/2018	Flexiworld Technologies, Inc.,
5	10.140,073	11/27/2018	Flexiworld Technologies, Inc.,

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
Order Dismissing Civil Action filed 2/1/2022.

CLERK	(BY) DEPUTY CLERK	DATE
KIRY K. GRAY	G. Kami	2/2/2022

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Central District of California on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT Central District of California
PLAINTIFF Flexiworld Technologies, Inc.,		DEFENDANT Epson America, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,140,071	11/27/2018	Flexiworld Technologies, Inc.,
2	10,481,846	11/19/2019	Flexiworld Technologies, Inc.,
3	10,481,847	11/19/2019	Flexiworld Technologies, Inc.,
4	10,642,576	5/5/2020	Flexiworld Technologies, Inc.,
5	10,740,066	8/11/2020	Flexiworld Technologies, Inc.,

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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DECISION/JUDGEMENT

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Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Central District of California on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT Central District of California
PLAINTIFF Flexiworld Technologies, Inc.,		DEFENDANT Epson America, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10.761,791	9/1/2020	Flexiworld Technologies, Inc.,
2	10,768,871	9/8/2020	Flexiworld Technologies, Inc.,
3	10,846,031	11/24/2020	Flexiworld Technologies, Inc.,
4	10,873,856	12/22/2020	Flexiworld Technologies, Inc.,
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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DECISION/JUDGEMENT

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Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/053,651	01/18/2002	William Ho Chang	FXT308

CONFIRMATION NO. 4711

POA ACCEPTANCE LETTER

Edward B. Anderson
Kolisch Hartwell, P.C.
200 Pacific Building
520 S.W. Yamhill Street
Portland, OR 97204

OC000000046089446

Date Mailed: 02/18/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/11/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/hsarwari/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Our File – FXT308

REVOCATION AND REAPPOINTMENT OF POWER OF ATTORNEY, STATEMENT UNDER 37 C.F.R. § 3.73(b), and ASSERTION OF RIGHT UNDER 37 C.F.R. § 3.71 AND MPEP § 106

Applicant(s): William Ho Chang and Christina Ying Liu
Serial No.: 10/053,651
Filed: January 18, 2002
Title: METHODS FOR UNIVERSAL DATA OUTPUT

Flexiworld Technologies, Inc., a Washington corporation, hereby revokes any and all previous powers of attorney or authorizations of agent given in the above-identified patent application and appoints:

Practitioners at Kolisch Hartwell, P.C., associated with Customer No.: 23581

as its attorneys and agents to prosecute the above-identified patent application and to transact all business in the United States Patent and Trademark Office connected therewith.

These practitioners currently include:

John M. McCormack, Reg. No. 26,948; Edward B. Anderson, Reg. No. 30,154; David P. Cooper, Reg. No. 33,372; Pierre C. Van Rysselberghe, Reg. No. 33,557; Charles H. DeVoe, Reg. No. 37,305; Anton E. Skaugset, Reg. No. 38,617; Owen W. Dukelow, Reg. No. 41,002; James R. Abney, Reg. No. 42,253; Stanley M. Hollenberg, Reg. No. 47,658; Peter D. Sabido, Reg. No. 50,353; Carla Todenhagen, Reg. No. 60,943; Thomas J. Romano, Reg. No. 61,230; and Shawn J. Kolitch, Reg. No. 62,233.

Flexiworld Technologies, Inc. states, under 37 C.F.R. § 3.73(b), that it is the assignee of the entire right, title, and interest in the above-identified patent application by virtue of an assignment from each of the inventor(s) named in the above-identified patent application. Copies of assignments or other documents in the chain of title are attached.

Flexiworld Technologies, Inc. hereby asserts its right, under 37 C.F.R. § 3.71 and MPEP § 106, to conduct the prosecution of the above-identified patent application to the exclusion of any previous assignee(s) and the inventors other than William Chang.

DIRECT COMMUNICATIONS TO:
Edward B. Anderson
Kolisch Hartwell, P.C.
200 Pacific Building
520 S.W. Yamhill Street
Portland, Oregon 97204

Telephone: (503) 224-6655
Facsimile: (503) 295-6679
E-Mail: docketing@khpatent.com

The undersigned (whose title is supplied below) is authorized to act on behalf of the above-identified assignee.

Flexiworld Technologies, Inc.

Date: 1/10/2011

Signature: William Ho Chang

William Ho Chang
President and Chief Technical Officer

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Attorney's Docket No. FXI308

A S S I G N M E N T

(Application Already Filed)

WHEREAS, I, William Ho Chang, of Vancouver, Washington, am a joint inventor with Christina Ying Liu of Fremont, California, of an improvement in or relating to METHODS FOR UNIVERSAL DATA OUTPUT for which we have made application for Letters Patent of the United States of America on **January 18, 2002** under Application No. **10/053,651**, now U.S. Patent No. 7,609,402; and

WHEREAS, FLEXIWORLD TECHNOLOGIES, INC., a corporation organized under the laws of the State of Washington, having a mailing address of 3439 NE Sandy Blvd., Suite 267, Portland, Oregon 97232, is desirous of acquiring an interest therein.

NOW, THEREFORE, in consideration of One Dollar ($1) and other good and valuable consideration, the receipt of which is hereby acknowledged, I, William Ho Chang, assign and transfer to FLEXIWORLD TECHNOLOGIES, INC., my entire legal and equitable right, title, and interest for the territory of the United States of America, and for all foreign countries, in and to the invention described and claimed in the aforesaid application for Letters Patent of the United States; said invention, application, and Letters Patent in this or any foreign country, and all divisions, continuations, reissues, and extensions thereof, to be held and enjoyed by the said FLEXIWORLD TECHNOLOGIES, INC. for its own use and behalf, and for its successors and assigns, to the full end of the term for which Letters Patent may be granted in this or any foreign country, as fully and entirely as the same would have been held by me had this assignment and sale not been made, and I warrant that I have full right to do so, and agree that I shall communicate to the said FLEXIWORLD TECHNOLOGIES, INC., or its successors and assigns any facts known to me respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing and reissue applications, make all rightful declarations, and generally

do everything possible to aid FLEXIWORLD TECHNOLOGIES, INC., its successors and assigns to obtain and enforce proper patent protection for said invention in this or any foreign country.

EXECUTED at Portland, Oregon, this 10 day of January, 2011, by

William Ho Chang

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Attorney's Docket No. FLEX 2406

A S S I G N M E N T

(Application Already Filed)

WHEREAS, we, William Ho Chang and Christina Ying Liu, both of Vancouver, Washington, are joint inventors of an improvement in or relating to METHOD FOR UNIVERSAL DATA OUTPUT for which we have made application for Letters Patent of the United States of America on **January 18, 2002** under Application No. **10/053,651**; and

WHEREAS, FLEXIWORLD TECHNOLOGIES, INC., a corporation organized under the laws of the State of Washington, having a mailing address of 3439 NE Sandy Blvd Suite #267, Portland, Oregon 97232, is desirous of acquiring an interest therein.

NOW, THEREFORE, in consideration of One Dollar ($1) and other good and valuable consideration, the receipt of which is hereby acknowledged, we, Christina Ying Liu and William Ho Chang, assign and transfer to FLEXIWORLD TECHNOLOGIES, INC., our entire legal and equitable right, title, and interest for the territory of the United States of America, and for all foreign countries, in and to the invention described and claimed in the aforesaid application for Letters Patent of the United States; nunc pro tunc as of the time the invention was made, said invention, application, and Letters Patent in this or any foreign country, and all divisions, continuations, reissues, and extensions thereof, to be held and enjoyed by the said FLEXIWORLD TECHNOLOGIES, INC. for its own use and behalf, and for its successors and assigns, to the full end of the term for which Letters Patent may be granted in this or any foreign country, as fully and entirely as the same would have been held by us had this assignment and sale not been made, and we warrant that we have full right to do so, and agree that we shall communicate to the said FLEXIWORLD TECHNOLOGIES, INC., or its successors and assigns any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing and reissue applications, make all rightful declarations, and generally

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

do everything possible to aid FLEXIWORLD TECHNOLOGIES, INC., its successors and assigns to obtain and enforce proper patent protection for said invention in this or any foreign country.

William Ho Chang — Date

Christina Ying Liu — 9/7/08 Date

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Electronic Acknowledgement Receipt	
EFS ID:	9427329
Application Number:	10053651
International Application Number:	
Confirmation Number:	4711
Title of Invention:	METHODS FOR UNIVERSAL DATA OUTPUT
First Named Inventor/Applicant Name:	William Ho Chang
Correspondence Address:	MR. WILLIAM H. CHANG FLEXIWORLD TECHNOLOGIES, INC. PMB 267 3439 N.E. SANDY BLVD. PORTLAND OR 97232-1959 US - -
Filer:	Edward Anderson/Heidi Dutro
Filer Authorized By:	Edward Anderson
Attorney Docket Number:	
Receipt Date:	11-FEB-2011
Filing Date:	18-JAN-2002
Time Stamp:	14:22:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		20110110_RevocationReappointmentofPowerofAttorney_FXT308.pdf	817855 267e1be62c3c09120bcb3779666c918304ac1ba7	yes	5

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Power of Attorney	1	1
	Assignee showing of ownership per 37 CFR 3.73(b).	2	5

Warnings:	
Information:	
Total Files Size (in bytes):	817855

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/053,651	01/18/2002	William Ho Chang	

CONFIRMATION NO. 4711

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

MISCELLANEOUS NOTICE

OC000000044647778

Date Mailed: 11/24/2010

A communication which cannot be delivered in electronic form has been mailed to the applicant.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/053,651	01/18/2002	William Ho Chang	

CONFIRMATION NO. 4711

OC000000044647778

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

Cc: KOLISCH HARTWELL, P.C.
200 PACIFIC BUILDING
520 SW YAMHILL STREET
PORTLAND, OR 97204

Date Mailed: 11/24/10

DENIAL OF REQUEST FOR POWER OF ATTORNEY

The request for Power of Attorney filed 11/15/10 is acknowledged. However, the request cannot be granted at this time for the reason stated below.

- ☐ The Power of Attorney you provided did not comply with the new Power of Attorney rules that became effective on June 25, 2004. See 37 CFR 1.32.
- ☐ The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.
- ☒ The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73(b) has not been received.
- ☐ The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
- ☐ The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
- ☐ The signature(s) of _____ , a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor(s).
- ☐ The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent and Trademark Office.

Questions relating to this Notice should be directed to the Application Assistance Unit.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

REVOCATION AND REAPPOINTMENT OF POWER OF ATTORNEY, STATEMENT UNDER 37 C.F.R. § 3.73(b), and ASSERTION OF RIGHT UNDER 37 C.F.R. § 3.71 AND MPEP § 106

Applicant(s): William Ho Chang and Christina Ying Liu
Serial No.: 10/053,651
Filed: January 18, 2002
Title: METHODS FOR UNIVERSAL DATA OUTPUT

Flexiworld Technologies, Inc., a Washington corporation, hereby revokes any and all previous powers of attorney or authorizations of agent given in the above-identified patent application and appoints:

Practitioners at Kolisch Hartwell, P.C., associated with Customer No.: **23581**

as its attorneys and agents to prosecute the above-identified patent application and to transact all business in the United States Patent and Trademark Office connected therewith.

These practitioners currently include:

John M. McCormack, Reg. No. 26,948; Edward B. Anderson, Reg. No. 30,154; David P. Cooper, Reg. No. 33,372; Pierre C. Van Rysselberghe, Reg. No. 33,557; Charles H. DeVoe, Reg. No. 37,305; Anton E. Skaugset, Reg. No. 38,617; Owen W. Dukelow, Reg. No. 41,002; James R. Abney, Reg. No. 42,253; Stanley M. Hollenberg, Reg. No. 47,658; Peter D. Sabido, Reg. No. 50,353; Brantley C. Shumaker, Reg. No. 56,588; Carla Todenhagen, Reg. No. 60,943; Thomas J. Romano, Reg. No. 61,230; and Shawn J. Kolitch, Reg. No. 62,233.

Flexiworld Technologies, Inc. states, under 37 C.F.R. § 3.73(b), that it is the assignee of the entire right, title, and interest in the above-identified patent application by virtue of an assignment from each of the inventor(s) named in the above-identified patent application.

Flexiworld Technologies, Inc. hereby asserts its right, under 37 C.F.R. § 3.71 and MPEP § 106, to conduct the prosecution of the above-identified patent application to the exclusion of the named inventor(s) and any previous assignee(s).

DIRECT COMMUNICATIONS TO:
Edward B. Anderson
Kolisch Hartwell, P.C.
200 Pacific Building
520 S.W. Yamhill Street
Portland, Oregon 97204

Telephone: (503) 224-6655
Facsimile: (503) 295-6679
E-Mail: docketing@khpatent.com

The undersigned (whose title is supplied below) is authorized to act on behalf of the above-identified assignee.

Flexiworld Technologies, Inc.

Date: OCT. 18, 2010

Signature: William Chang
William Ho Chang
President and Chief Technical Officer

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Electronic Acknowledgement Receipt

EFS ID:	8840331
Application Number:	10053651
International Application Number:	
Confirmation Number:	4711
Title of Invention:	METHODS FOR UNIVERSAL DATA OUTPUT
First Named Inventor/Applicant Name:	William Ho Chang
Correspondence Address:	MR. WILLIAM H. CHANG FLEXIWORLD TECHNOLOGIES, INC. PMB 267 3439 N.E. SANDY BLVD. PORTLAND OR 97232-1959 US - -
Filer:	Edward Anderson/Veronica Gotelli
Filer Authorized By:	Edward Anderson
Attorney Docket Number:	
Receipt Date:	15-NOV-2010
Filing Date:	18-JAN-2002
Time Stamp:	17:22:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	20101018_Revocation_Reappointment_of_Power_of_Attorney_FXT308.pdf	415976 dfa62ea84c2409a906a21f1fe69e189ece32be89	no	1
Warnings:					
Information:					
		Total Files Size (in bytes):	415976		

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New Applications Under 35 U.S.C. 111
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National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

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United States Patent and Trademark Office
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	10/27/2009	7609402		4711

7590 10/07/2009

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 1431 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

William Ho Chang, Vancouver, WA;
Christina Ying Liu, Vancouver, WA;

IR103 (Rev. 10/09)

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

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United States Patent and Trademark Office
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PORTLAND, OR. 97201

RE:10053651

Date Mailed: 10/5/2009

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- ☐ The check is not immediately negotiable in the United States because it is either not drawn on a US bank, or not payable in US funds.
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- ☐ The check was received without documentation or instructions on how the money is to be applied.
- ☑ The fee for which the payment is intended has already been paid.
- ☐ The fee for which the payment is intended is not due.

Application Assistance Unit 571-272-4200

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Best Available Copy

In claim 38, line 2, change "output" (first occurrence) to --wireless--.

In claim 41, line 2, change "signatures" to --signature--.

In claim 41, line 3, change "keys" to --key--.

In claim 41, line 3, change "biometrics" to --biometric--.

In claim 41, line 3, change "fingerprints" to --fingerprint--.

10/053,651
3P
9/24/09

In claim 46, line 5, change "signatures" to --signature--.

In claim 46, line 5, change "biometrics" to --biometric--.

In claim 46, line 5, change "fingerprints" to --fingerprint--.

In claim 51, line 5, change "signatures" to --signature--.

In claim 51, line 5, change "biometrics" to --biometric--.

In claim 51, line 5, change "fingerprints" to --fingerprint--.

In claim 59, line 2, change "signatures" to --signature--.

In claim 59, line 3, change "keys" to --key--.

In claim 59, line 3, change "biometrics" to --biometric--.

In claim 59, line 3, change "fingerprints" to --fingerprint--.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

triplicate

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590 06/15/2009

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

OIPE SEP 14 2009 PATENT & TRADEMARK OFFICE

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Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Mark M. Meininger	(Depositor's name)
Mark M. M	(Signature)
Sept. 10, 2009	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

TITLE OF INVENTION: METHODS FOR UNIVERSAL DATA OUTPUT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	09/15/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
POPOVICI, DOV	2625	358-001150

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Flexiworld, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Portland, OR

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☒ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature Mark M. M Date Sept. 10, 2009

Typed or printed name Mark M. Meininger Registration No. 32,428

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590 06/15/2009

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
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John R. Dawson	(Depositor's name)
	(Signature)
Sept 11, 2009	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

TITLE OF INVENTION: METHODS FOR UNIVERSAL DATA OUTPUT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	09/15/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
POPOVICI, DOV	2625	358-001150

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☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 ipsolon
2
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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Flexiworld, INC.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Portland, OR

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☒ Payment by credit card. Form PTO-2038 is attached. VIA EFS-WEB
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
☒ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date Sept 11, 2009

Typed or printed name John R Dawson Registration No. 39,504

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Electronic Patent Application Fee Transmittal

Application Number:	10053651
Filing Date:	18-Jan-2002
Title of Invention:	METHODS FOR UNIVERSAL DATA OUTPUT
First Named Inventor/Applicant Name:	William Ho Chang
Filer:	John Dawson
Attorney Docket Number:	

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1510	1510
Publ. Fee- early, voluntary, or normal	1504	1	300	300

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Lexmark v. Flexiworld

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1810**

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EFS ID:	6055858
Application Number:	10053651
International Application Number:	
Confirmation Number:	4711
Title of Invention:	METHODS FOR UNIVERSAL DATA OUTPUT
First Named Inventor/Applicant Name:	William Ho Chang
Correspondence Address:	MR. WILLIAM H. CHANG FLEXIWORLD TECHNOLOGIES, INC. PMB 267 3439 N.E. SANDY BLVD. PORTLAND OR 97232-1959 US - -
Filer:	John Dawson
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	11-SEP-2009
Filing Date:	18-JAN-2002
Time Stamp:	14:27:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1810

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Lexmark v. Flexiworld

RAM confirmation Number	673
Deposit Account	
Authorized User	

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	20090911122249.pdf	162193 91739727b5bc8d6f7472476dd0914834108 45f41	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	31766 7a3b2cfc2b278cf46f75db4e118901c2567c 2c27	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	193959		

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Lexmark v. Flexiworld

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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 06/15/2009

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

EXAMINER	
POPOVICI, DOV	
ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 06/15/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

TITLE OF INVENTION: METHODS FOR UNIVERSAL DATA OUTPUT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	09/15/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

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B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

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(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

TITLE OF INVENTION: METHODS FOR UNIVERSAL DATA OUTPUT

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EXAMINER	ART UNIT	CLASS-SUBCLASS
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3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

7590 06/15/2009

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
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PORTLAND, OR 97232-1959

EXAMINER	
POPOVICI, DOV	
ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 06/15/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1254 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1254 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

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Notice of Allowability	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Dov Popovici	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the RCE request and the IDS filed on 06/09/2009*.

2. ☒ The allowed claim(s) is/are *23-59, renumbered as claims 1-37*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 06/09/2009
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Dov Popovici/
Primary Examiner, Art Unit 2625

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 06/09/2009 has been entered.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

Yoshida (U.S. Patent No. 7,366,468) discloses a printer apparatus including a reception device adapted to wirelessly receive an inquiry signal which is transmitted by a wireless communication apparatus in order to search surrounding devices, and a transmission device adapted to transmit a response signal to the inquiry signal received by the reception device. The response signal includes information indicating that the printer is a specified printer which is pre-registered in the wireless communication apparatus and information indicating that the printer is operating in a printing process (see column 2, lines 35-45).

However, the closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search; selecting at

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the information apparatus a wireless output device found in the search based at least in part on a received attribute; generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforming at least partly based on said received attribute of the selected output device; converting at the output controller, the intermediate output data into an output data acceptable for rendering at the output device, and conforming at the output device the output data into a data format that is acceptable for rendering by a rendering engine in the output device, and delivering the data format to the rendering engine for output, whereby, the information apparatus is able to output, in a mobile pervasive manner, one or more images representative of said content to an output device without the need to install an output device driver specific to that output device, as claimed in independent claim 23.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output device, the device attribute including at least an indication of a supported output device profile; selecting a wireless output device found in the search based at least in part on the received device attribute; conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard parameter; generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforming at least

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partly to said supported output device profile of a selected output that is included in said device attribute of the selected wireless output device and received over the wireless communication channel; decoding at the output device the intermediate output data; converting at said output device the intermediate output data into an output data format acceptable for rendering by an output engine included in said output device, and whereby the wireless information apparatus is able to pervasively output one or more images representative of said content to an output device without need to install an output device driver specific to that output device, as recited in independent claim 31.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel an attribute corresponding to each discovered wireless device, the attribute including one or more of a name, a device type, a device address, and an indication of a supported output device profile; selecting a wireless output device from among the one or more discovered wireless devices based at least in part on the received attribute; obtaining a security key at the information apparatus, the security key enabling wireless data transfer to the selected output device; sending a security code related at least partly to the security key over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer; receiving over the wireless communication channel a response related to an authentication; and if the received response is positive, establishing a wireless connection channel between the information apparatus and the selected wireless output device,

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conforming, at the information apparatus, at least part of the content into an output data encoded with at least one format, the conforming relating at least in part to the attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering, receiving at the selected output device the output data, performing at the selected output device at least one decoding operation on said output data, and converting the output data into an output engine data acceptable for rendering by an output engine included in the selected output device, as claimed in independent claim 35.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search; selecting at the information apparatus a selected wireless output device found in the search based at least in part on a received attribute, the selected wireless output device having an associated output controller; conforming at the information apparatus at least part of the content into one or more output images; generating at the information apparatus an intermediate output data that includes said one or more output images; the intermediate output data being at least partly compatible with said received attribute of the selected wireless output device; and wirelessly transmitting the intermediate output data from the information apparatus to the selected wireless output device where the intermediate output data are decoded for rendering at

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the output device, in combination with accessing, opening, searching wirelessly and establishing a wireless connection, as recited in independent claim 45.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output device, the device attribute including at least an indication of a supported output device profile; selecting a wireless output device found in the search based at least in part on the received device attribute; conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard parameter; generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforming at least partly to said supported output device profile of a selected output that is included in said device attribute of the selected wireless output device and received over the wireless communication channel; and delivering the intermediate output data over the wireless connection for rendering at the selected wireless output device for rendering, in combination with opening, searching wirelessly and establishing a point to point wireless connection, as claimed in independent claim 50.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel an attribute corresponding to each discovered wireless device, the attribute including one or more of a name, a device type, a device address, and

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an indication of a supported output device profile; selecting a wireless output device from among the one or more discovered wireless devices based at least in part on the received attribute; obtaining a security key at the information apparatus, the security key enabling wireless data transfer to the selected output device; sending at least part of the security key over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer; receiving over the wireless communication channel a response related to an authentication; and if the received response is positive, establishing a wireless connection channel between the information apparatus and the selected wireless output device, and conforming, at the information apparatus, at least part of the content into an output data encoded with at least one format, the conforming relating at least in part to the attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering, in combination with opening and discovering wirelessly one or more wireless devices that are available for wireless connection, as recited in independent claim 55.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dov Popovici whose telephone number is 571-272-4083. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dov Popovici/
Primary Examiner, Art Unit 2625

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	**Art Unit**
	Dov Popovici	2625

ORIGINAL		INTERNATIONAL CLASSIFICATION									
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED				
358	1.15	G	0	6	F	3 / 12 (2006.01.01)	G	0	6	K	15 / 00 (2006.01.01)

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
358	1.13	1.14			

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17	11	33	27	49								
	2		18	12	34	28	50								
	3		19	13	35	29	51								
	4		20	14	36	30	52								
	5		21	15	37	31	53								
	6		22	16	38	32	54								
	7	1	23	17	39	33	55								
	8	2	24	18	40	34	56								
	9	3	25	19	41	35	57								
	10	4	26	20	42	36	58								
	11	5	27	21	43	37	59								
	12	6	28	22	44										
	13	7	29	23	45										
	14	8	30	24	46										
	15	9	31	25	47										
	16	10	32	26	48										

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	37	
/Dov Popovici/ Primary Examiner, Art Unit 2625	6/12/2009	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	28	11

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	Art Unit
	Dov Popovici	2625

SEARCHED

Class	Subclass	Date	Examiner
358	1.15, 1.14, 1.13, 1.16, 1.17, 1.18, 1.1, 1.6, 1.9, 1.2, 1.5, 1.11, 400, 401, 407, 468, 434, 435, 436, 437, 438, 439	6/11/2009	D.P.
347	2, 3, 5, 14, 23	6/11/2009	D.P.
399	1, 8	6/11/2009	D.P.
455	3.01, 557, 151.2	6/11/2009	D.P.

SEARCH NOTES

Search Notes	Date	Examiner
East Search - See attached East Search History - (S1 to S188) - text search with the search area listed above, text search in the US-PGPUB database and within the claims and with the search area listed below (Interference Search), and Inventor Name Search.	6/11/2009 and 6/12/2009	D.P.
Consulted - Gabriel I. Garcia - Class 358	6/11/2009	D.P.
Inventor Name Search	6/12/2009	D.P.
East Search - See attached East Search History - (S1 to S246) - Prior art cited in the IDS filed on 6/9/2009 and text search with the prior art cited in the IDS filed on 6/9/2009	6/10/2009 and 6/11/2009	D.P.

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner
358	1.15, 1.14, 1.13, 1.16, 1.17, 1.18, 1.1, 1.6, 1.9, 1.2, 1.5, 1.11, 400, 401, 407, 468, 434, 435, 436, 437, 438, 439	6/12/2009	D.P.
347	2, 3, 5, 14, 23	6/12/2009	D.P.
399	1, 8	6/12/2009	D.P.
455	3.01, 557, 151.2	6/12/2009	D.P.

	/Dov Popovici/ Primary Examiner, Art Unit 2625

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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S81	20	S61 or S62 or S63 or S64 or S65 or S66 or S67 or S68 or S69 or S70 or S71 or S72 or S73 or S74 or S75 or S76 or S77 or S78 or S79 or S80	US-PGPUB; USPAT	OR	OFF	2009/06/11 10:10
S82	40	S21 or S22 or S23 or S24 or S25 or S26 or S27 or S28 or S29 or S30 or S31 or S32 or S33 or S34 or S35 or S36 or S37 or S38 or S39 or S40 or S41 or S42 or S43 or S44 or S45 or S46 or S47 or S48 or S49 or S50 or S51 or S52 or S53 or S54 or S55 or S56 or S57 or S58 or S59 or S60	US-PGPUB; USPAT	OR	OFF	2009/06/11 10:12
S83	59	S81 or S82	US-PGPUB; USPAT	OR	OFF	2009/06/11 10:12

S84	20859	(search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless $5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT	OR	ON	2009/06/11 10:16
S85	6737590	((attribut$5) or (name$3) or (type$2) or address$3 or ID$2 or profile$3 or (secur$5 near3 code$2))	US-PGPUB; USPAT	OR	ON	2009/06/11 10:17
S86	2679225	((attribut$5) or (device$2 near5 name$3) or (device $2 near5 type$2) or address$3 or ID$2 or profile$3 or (secur$5 near3 code$2))	US-PGPUB; USPAT	OR	ON	2009/06/11 10:19
S87	52086	S86 with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT	OR	ON	2009/06/11 10:20
S88	3	S83 and S84	US-PGPUB; USPAT	OR	ON	2009/06/11 10:21
S89	3	S83 and S84 and S85	US-PGPUB; USPAT	OR	ON	2009/06/11 10:21
S90	3	S83 and S84 and S86	US-PGPUB; USPAT	OR	ON	2009/06/11 10:22
S91	2	S83 and S84 and S87	US-PGPUB; USPAT	OR	ON	2009/06/11 10:22
S92	56121	(search$5 or discover$5 or look$3 or find$3 or found$3 or select$5) with ((wireless$5) or (wire$2 adj less$3) or (wire$less $5))	US-PGPUB; USPAT	OR	ON	2009/06/11 10:27
S93	4	S83 and S92	US-PGPUB; USPAT	OR	ON	2009/06/11 10:27
S94	1659263	conform$3 or rasterization or rasteriz$5 or scaling or scal$5	US-PGPUB; USPAT	OR	ON	2009/06/11 10:30
S95	855920	interpolat$5 or decod$3 or encod$3	US-PGPUB; USPAT	OR	ON	2009/06/11 10:31
S96	1441008	filter$3	US-PGPUB; USPAT	OR	ON	2009/06/11 10:32
S97	1	S93 and S94	US-PGPUB; USPAT	OR	ON	2009/06/11 10:32
S98	1	S93 and S94 and S87	US-PGPUB; USPAT	OR	ON	2009/06/11 10:33
S99	2	S93 and S95	US-PGPUB; USPAT	OR	ON	2009/06/11 10:34
S100	1	S93 and S96	US-PGPUB; USPAT	OR	ON	2009/06/11 10:34

S101	3592049	conform$3 or rasterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT	OR	ON	2009/06/11 10:36
S102	1349953	intermediat$5	US-PGPUB; USPAT	OR	ON	2009/06/11 10:36
S103	914308	S101 and S102	US-PGPUB; USPAT	OR	ON	2009/06/11 10:37
S104	56121	(search$5 or discover$5 or look$3 or find$3 or found$3 or select$5) with ((wireless$5) or (wire$2 adj less$3) or (wire$less $5))	US-PGPUB; USPAT	OR	ON	2009/06/11 10:37
S105	6737590	((attribut$5) or (name$3) or (type$2) or address$3 or ID$2 or profile$3 or (secur$5 near3 code$2))	US-PGPUB; USPAT	OR	ON	2009/06/11 10:38
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S107	1	("5564109").PN.	USPAT	OR	OFF	2009/06/11 10:39
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S111	1	("5619649").PN.	USPAT	OR	OFF	2009/06/11 10:39
S112	1	("5412798").PN.	USPAT	OR	OFF	2009/06/11 10:39
S113	1	("5613123").PN.	USPAT	OR	OFF	2009/06/11 10:39
S114	1	("6138178").PN.	USPAT	OR	OFF	2009/06/11 10:39
S115	1	("6148346").PN.	USPAT	OR	OFF	2009/06/11 10:39
S116	1	("6324521").PN.	USPAT	OR	OFF	2009/06/11 10:39
S117	1	("6857716").PN.	USPAT	OR	OFF	2009/06/11 10:39
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S126	1	("6366912").PN.	USPAT	OR	OFF	2009/06/11 10:39
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S130	1	("20030122934").PN.	US-PGPUB	OR	OFF	2009/06/11 10:39
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S169	13	(S166 or S167) and S101 and S102	US-PGPUB; USPAT	OR	ON	2009/06/11 10:40
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S171	2	(S166 or S167) and S101 and S102 and S104 and S105	US-PGPUB; USPAT	OR	ON	2009/06/11 10:40
S172	2	(S166 or S167) and (S101 same S102)	US-PGPUB; USPAT	OR	ON	2009/06/11 10:43
S173	0	(S166 or S167) and (S101 same S102 same S104)	US-PGPUB; USPAT	OR	ON	2009/06/11 10:43
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S177	56121	(search$5 or discover$5 or look$3 or find$3 or found$3 or select$5) with ((wireless$5) or (wire$2 adj less$3) or (wire$less $5))	US-PGPUB; USPAT	OR	ON	2009/06/11 10:48
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S240	59	S238 or S239	US-PGPUB; USPAT	OR	ON	2009/06/11 10:48
S241	6	S240 and S176	US-PGPUB; USPAT	OR	ON	2009/06/11 10:49
S242	3	S240 and S176 and S177	US-PGPUB; USPAT	OR	ON	2009/06/11 10:49
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S245	3	S240 and S177 and S243	US-PGPUB; USPAT	OR	ON	2009/06/11 10:50
S246	2	S240 and (S177 same S243)	US-PGPUB; USPAT	OR	ON	2009/06/11 10:51

6/11/2009 11:47:23 AM
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	Art Unit
	Dov Popovici	2625

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	Art Unit
	Dov Popovici	2625

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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37	59	=								

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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S2	6300628	(attribut$5) or (device$2 near5 name$3) or (device$2 near5 type$2) or (address$3) or (ID$2) or (profile$3) or (secur$5 near5 code$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:26
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S4	8459	S1 same S3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:28
S5	7243382	conform$3 or raterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:30
S6	778	S1 same S3 same S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:30
S7	14594	S1 and S3 and S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:31
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S10	1164	S1 same S8 same S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:38
S11	21317	S1 and S8 and S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:39
S12	727	(open$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) with (channel$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:42
S13	2549719	intermediat$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:43
S14	246	(S1 same S3 same S5) and S13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:43
S15	0	(S1 same S3 same S5) and S13 and S12	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:44
S16	72952	((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) with (channel$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:44
S17	164	(S1 same S3 same S5) and S13 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:44

S18	334	(S1 same S8 same S5) and S13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:45
S19	217	(S1 same S8 same S5) and S13 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:46
S20	3487	S1 and (S2 or S3 or S8) and S5 and S13 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:47
S21	1	S1 same (S2 or S3 or S8) same S5 same S13 same S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:49
S22	38859	install$5 with driver$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:52
S23	39276	(install$5 or instal$7) with driver$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:53
S24	126	S1 and (S2 or S3 or S8) and S5 and S13 and S16 and (S22 or S23)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 12:54
S25	115792	(security or secur$5) near5 (key or key$3 or code$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:14
S26	518	S1 and (S2 or S3 or S8) and S5 and S13 and S16 and S25	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:14

S27	114034	(intermediat$5 with decod$3 or decompress$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:20
S28	9828	(intermediat$5 with (decod$3 or decompress$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:21
S29	315	S1 and (S2 or S3 or S8) and S5 and S13 and S16 and S28	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:22
S30	237076	profil$5 and intermediat$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:23
S31	1019	S1 and (S2 or S3 or S8) and S5 and S13 and S16 and S30	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:23
S32	31784	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 13:26
S33	4237	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 13:26
S34	5259	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 13:26
S35	3328	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 13:27

S36	44127	S32 or S33 or S34 or S35	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:27
S37	1066	S36 and S1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:28
S38	126	S1 and (S2 or S3 or S8) and S5 and S13 and S16 and S22	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:28
S39	942	S36 and S3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:29
S40	161	S36 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:29
S41	18	S36 and S6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:29
S42	311	S36 and S7	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:29
S43	1743	S36 and S8	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:30
S44	230	S36 and S9	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:30

S45	21	S36 and S10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 13:30
S46	73191	(search$5 or discover$5 or look$3 or find$3 or found$3 or select$5) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:43
S47	7243382	conform$3 or raterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:43
S48	117620	((attribut$5) or (name$3) or (type$2) or (address$3) or (ID$2) or (profile$3) or (secur$5 near5 code$2)) with ((wireless$5) or (wire$2 adj less $3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:43
S49	21317	S46 and S48 and S47	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:43
S50	31784	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 14:43
S51	4237	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 14:43
S52	5259	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 14:43
S53	3328	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 14:43

S54	44127	S50 or S51 or S52 or S53	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:43
S55	433	S54 and S49	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:43
S56	727	(open$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) with (channel$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:45
S57	9	S54 and S56	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:45
S58	62573	((attribut$5) or (device$2 near5 name$3) or (device$2 near5 type$2) or (address$3) or (ID$2) or (profile$3) or (secur$5 near5 code$2)) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:45
S59	2549719	intermediat$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:45
S60	246	(S46 same S58 same S47) and S59	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:45
S61	1	S54 and S60	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:45
S62	72952	((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) with (channel$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:47

S63	716	S54 and S62	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:47
S64	164	(S46 same S58 same S47) and S59 and S62	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:48
S65	1	S54 and S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:48
S66	334	(S46 same S48 same S47) and S59	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:48
S67	1	S54 and S66	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:48
S68	217	(S46 same S48 same S47) and S59 and S62	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:49
S69	1	S54 and S68	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:49
S70	6300628	(attribut$5) or (device$2 near5 name$3) or (device$2 near5 type$2) or (address$3) or (ID$2) or (profile$3) or (secur$5 near5 code$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:50
S71	3487	S46 and (S70 or S58 or S48) and S47 and S59 and S62	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:50

S72	57	S54 and S71	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:50
S73	38859	install$5 with driver$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:51
S74	2177	S54 and S73	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:51
S75	39276	(install$5 or instal$7) with driver$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:51
S76	2179	S54 and S75	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:51
S77	126	S46 and (S70 or S58 or S48) and S47 and S59 and S62 and (S73 or S75)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:52
S78	17	S54 and S77	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:52
S79	115792	(security or secur$5) near5 (key or key$3 or code$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:53
S80	518	S46 and (S70 or S58 or S48) and S47 and S59 and S62 and S79	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:53

S81	20	S54 and S80	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 14:53
S82	114034	(intermediat$5 with decod$3 or decompress$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S83	31784	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 20:51
S84	4237	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 20:51
S85	5259	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 20:51
S86	3328	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/11 20:51
S87	44127	S83 or S84 or S85 or S86	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S88	3024	S87 and S82	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S89	3828	(intermediat$5 with (decod$3 or decompress$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51

S90	191	S87 and S89	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S91	73191	(search$5 or discover$5 or look$3 or find$3 or found$3 or select$5) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S92	6300628	(attribut$5) or (device$2 near5 name$3) or (device$2 near5 type$2) or (address$3) or (ID$2) or (profile$3) or (secur$5 near5 code$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S93	62573	((attribut$5) or (device$2 near5 name$3) or (device$2 near5 type$2) or (address$3) or (ID$2) or (profile$3) or (secur$5 near5 code$2)) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S94	7243382	conform$3 or raterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S95	117620	((attribut$5) or (name$3) or (type$2) or (address$3) or (ID$2) or (profile$3) or (secur$5 near5 code$2)) with ((wireless$5) or (wire$2 adj less $3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S96	2549719	intermediat$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S97	72952	((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) with (channel$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S98	315	S91 and (S92 or S93 or S95) and S94 and S96 and S97 and S89	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51

S99	11	S87 and S98	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:51
S100	237076	profil$5 and intermediat$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:55
S101	1006	S87 and S100	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:55
S102	1019	S91 and (S92 or S93 or S95) and S94 and S96 and S97 and S100	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:56
S103	23	S87 and S102	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/11 20:56
S104	21272	((search$5 or discover$5 or look$3 or find$3 or found$3 or select$5) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:30
S105	9190	((((attribut$5) or (device$2 near5 name$3) or (device$2 near5 type$2) or (address$3) or (ID$2) or (profile$3) or (secur$5 near5 code$2)) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:31
S106	3135	S104 and S105	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:31
S107	323343	intermediat$5.clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:32

S108	71	S104 and S105 and S107	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:32
S109	2624	(install$5 with driver$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:33
S110	0	S108 and S109	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:33
S111	106034	(driver$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:33
S112	5	S108 and S111	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:33
S113	982625	((conform$3 or raterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:34
S114	19	S108 and S113	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:34
S115	106	(((open$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) with (channel$3)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:36
S116	1	S108 and S115	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:36

S117	2626	(((install$5 or instal$7) with driver$5).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:37
S118	32	S104 and S117	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:37
S119	3	S104 and S117 and S105	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:37
S120	13246	(((security or secur$5) near5 (key or key$3 or code$3)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:37
S121	301	S104 and S120	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:38
S122	113	S104 and S120 and S105	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:38
S123	3	S104 and S120 and S105 and S107	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:38
S124	1503	((((intermediat$5 with (decod$3 or decompress$3))).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:39
S125	12	S124 and S104	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:39

S126	3	S124 and S104 and S105	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:40
S127	3	S124 and S104 and S105 and S107	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:41
S128	3	S124 and S104 and S105 and S107 and S113	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:41
S129	0	S124 and S104 and S105 and S107 and S113 and S111	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:41
S130	0	S124 and S104 and S105 and S107 and S113 and S115	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:42
S131	2	S124 and S104 and S105 and S107 and S113 and S120	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:42
S132	9194	(profil$5 and intermediat$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:45
S133	33	S132 and S104	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:47
S134	9	S132 and S104 and S105	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:47

S135	7	S132 and S104 and S105 and S113	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:47
S136	258	(wireless$5 and decod$5 and intermediat$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:49
S137	4	(wireless$5 and decod$5 and intermediat$5 and open$5 and channel$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:50
S138	16	(wireless$5 and decod$5 and intermediat$5 and search$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:50
S139	2	(wireless$5 and decod$5 and intermediat$5 and search$5 and attribut$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:51
S140	246	(wireless$5 and search$5 and attribut$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:53
S141	45	(wireless$5 and search$5 and attribut$5 and profil$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:53
S142	0	(wireless$5 and search$5 and attribut$5 and profil$5 and conform$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:54
S143	4	(wireless$5 and search$5 and attribut$5 and profil$5 and intermediat$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:54

S144	0	(wireless$5 and search$5 and attribut$5 and profil$5 and intermediat$5 and conform$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:55
S145	31784	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/12 06:55
S146	4237	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/12 06:55
S147	5259	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/12 06:55
S148	3328	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/12 06:55
S149	44127	S145 or S146 or S147 or S148	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:55
S150	468	S149 and S104	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:55
S151	201	S149 and S105	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:56
S152	80	S149 and S106	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:56

S153	1	S149 and S108	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:56
S154	1	S149 and S114	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:58
S155	1	S149 and S115	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 06:59
S156	2	S149 and S118	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:00
S157	11	S149 and S121	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:01
S158	2	S149 and S122	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:01
S159	2	S149 and S133	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:02
S160	8	S149 and S136	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:03
S161	1	S149 and S138	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:03

S162	3	S149 and S140	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:03
S163	0	S149 and S141	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:04
S164	119	(William$5 near9 Chang$5).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:09
S165	39	(Christina$5 near9 Liu$5).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:10
S166	129	S164 or S165	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:11
S167	73191	(search$5 or discover$5 or look$3 or find$3 or found$3 or select$5) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:12
S168	30	(S164 or S165) and S167	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:12
S169	39	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:13
S170	30	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:14

S171	29	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:15
S172	17	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:15
S173	17	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:19
S174	31	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3))).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:19
S175	18	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:20
S176	11	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:20
S177	8	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:21
S178	3	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:23
S179	17	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:26

S180	16	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5) and (intermediat$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:27
S181	3	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:27
S182	2	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5) and (intermediat$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:28
S183	16	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5) and (intermediat$5) and (open$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:39
S184	0	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5) and (intermediat$5) and (open$3)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:39
S185	16	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5) and (intermediat$5) and (channel$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:40
S186	2	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5) and (intermediat$5) and (channel$3)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:41
S187	16	(S164 or S165) and ((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5) and (intermediat$5) and (channel$3) and (predefin$3 or parameter$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:43
S188	2	(S164 or S165) and ((((wireless$5) or (wire$2 adj less$3) or (wire$less$3)) and (attribut$5) and (search$5 or discover$5) and (conform$5) and (profil$5) and (imag$5) and (intermediat$5) and (channel$3) and (predefin$3 or parameter$3)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/12 07:43

6/12/2009 2:57:24 PM
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	10053651
Filing Date	2002-01-18
First Named Inventor	Chang
Art Unit	2625
Examiner Name	POPOVICI, DOV
Attorney Docket Number	1282-026/MMM

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/D.P./	2	6141659		2000-10-01	Barker et al.	
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Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Receipt date: 06/09/2009	Application Number	10053651	10053651 - GAU: 2625
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Filing Date	2002-01-18	
	First Named Inventor	Chang	
	Art Unit	2625	
	Examiner Name	POPOVICI, DOV	
	Attorney Docket Number	1282-026/MMM	

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/D.P./	2	20030120754		2003-06-01	Muto et al.	

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Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Receipt date: 06/09/2009	Application Number	10053651 10053651 - GAU: 2625
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)	Filing Date	2002-01-18
	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

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Lexmark, Exhibit 1002
Lexmark v. Flexiworld

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10053651
	Filing Date	2002-01-18
	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

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Lexmark, Exhibit 1002
Lexmark v. Flexiworld

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	Art Unit	2625	
	Examiner Name	POPOVICI, DOV	
	Attorney Docket Number	1282-026/MMM	

/D.P./	9	7370090		2008-05-01	Nakaoka et al.	
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/D.P./	19	6363452		2002-03-01	Lach	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)	Filing Date	2002-01-18	
	First Named Inventor	Chang	
	Art Unit	2625	
	Examiner Name	POPOVICI, DOV	
	Attorney Docket Number	1282-026/MMM	

/D.P./	20	5404433		1995-04-01	Hosogai	
/D.P./	21	6449052		2002-09-01	Sherer et al.	
/D.P./	22	5564109		1996-10-01	Snyder et al.	
/D.P./	23	6285889		2001-09-01	Nykanen et al	
/D.P./	24	5220674		1993-06-01	Morgan et al.	
/D.P./	25	5832191		1998-11-01	Thorne	
/D.P./	26	5619649		1997-04-01	Kovnat et al.	
/D.P./	27	5412798		1995-05-01	Gamey	
/D.P./	28	5613123		1997-03-01	Tsang et al.	
/D.P./	29	6138178		2000-10-01	Watanabe	
/D.P./	30	6148346		2000-11-01	Hanson	

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Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Receipt date: 06/09/2009	Application Number	10053651	10053651 - GAU: 2625
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)	Filing Date	2002-01-18	
	First Named Inventor	Chang	
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/D.P./	31	6324521		2001-11-01	Shiota et al.	
/D.P./	32	6857716		2005-02-01	Nagahashi	
/D.P./	33	6760745		2004-07-01	Tan et al.	
/D.P./	34	6043898		2000-03-01	Jacobs	
/D.P./	35	6452692		2002-09-01	Yacoub	
/D.P./	36	6745229		2004-06-01	Gobin et al.	
/D.P./	37	6697848		2004-02-01	Hamilton et al.	
/D.P./	38	6694371		2004-02-01	Sanai	
/D.P./	39	6477575		2002-11-01	Koeppel et al.	
/D.P./	40	6473800		2002-10-01	Jerger et al.	
/D.P./	41	6366912		2002-04-01	Wallent et al.	

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Lexmark v. Flexiworld

/D.P./	42	6225993		2001-05-01	Lindblad et al.	
/D.P./	43	6070185		2000-05-01	Anuparn et al.	
/D.P./	44	6009464		1999-12-01	Hamilton et al.	

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/D.P./	1	20030122934		2003-07-01	Shiohara	
/D.P./	2	20010029531		2001-10-01	Ohta	
/D.P./	3	20020012329		2002-01-01	Atkinson et al.	
/D.P./	4	20020026492		2002-02-01	Fujita	
/D.P./	5	20020081993		2002-06-01	Toyoshima	
/D.P./	6	20040057075		2004-03-01	Stewart et al.	

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Receipt date: 06/09/2009	Application Number	10053651	10053651 - GAU: 2625
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	Attorney Docket Number	1282-026/MMM	

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Lexmark v. Flexiworld

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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	10053651	Filing Date	2002-01-18	Docket Number (if applicable)	1282-026/MMM	Art Unit	2625
First Named Inventor	Chang			Examiner Name	Popovici, Dov		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☐ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☐ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No _____

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Signature	/Mark M. Meininger/	Date (YYYY-MM-DD)	2009-06-09
Name	Mark M. Meininger	Registration Number	32428

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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Electronic Patent Application Fee Transmittal

Application Number:	10053651
Filing Date:	18-Jan-2002
Title of Invention:	METHODS FOR UNIVERSAL DATA OUTPUT
First Named Inventor/Applicant Name:	William Ho Chang
Filer:	Mark Meininger
Attorney Docket Number:	

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**405**

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Lexmark v. Flexiworld

Electronic Acknowledgement Receipt

EFS ID:	5484942
Application Number:	10053651
International Application Number:	
Confirmation Number:	4711
Title of Invention:	METHODS FOR UNIVERSAL DATA OUTPUT
First Named Inventor/Applicant Name:	William Ho Chang
Correspondence Address:	MR. WILLIAM H. CHANG FLEXIWORLD TECHNOLOGIES, INC. PMB 267 3439 N.E. SANDY BLVD. PORTLAND OR 97232-1959 US - -
Filer:	Mark Meininger
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	09-JUN-2009
Filing Date:	18-JAN-2002
Time Stamp:	18:02:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$405

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RAM confirmation Number	4326
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed (SB/08)	10053651IDS2A.pdf	609826 e0d8f9a438947e9e2899e498243f4cf643f1f304	no	8
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Filed (SB/08)	10053651IDS2B.pdf	608446 65ac6f0d503f6af94a61791c82daeddf0924081a	no	5
Warnings:					
Information:					
3	Request for Continued Examination (RCE)	sb0030e_fillRCE2.pdf	697265 075ee4fc5dc2b2654990c542c44d238ed6980ecd	no	3
Warnings:					
Information:					
4	Fee Worksheet (PTO-875)	fee-info.pdf	30089 ce7344997a44a5e752a83ef504fec0f37a41b48a	no	2
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
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Application Number	10053651
Filing Date	2002-01-18
First Named Inventor	Chang
Art Unit	2625
Examiner Name	POPOVICI, DOV
Attorney Docket Number	1282-026/MMM

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5911044		1999-06-01	Lo et al.	
	2	6233611		2001-05-01	Ludtke et al.	
	3	6546419		2003-04-01	Humpleman et al.	
	4	6678751		2004-01-01	Hays et al.	
	5	6826632		2004-11-01	Wugofski	
	6	5220674		1993-06-01	Morgan et al.	
	7	6167514		2000-12-01	Matsui et al.	
	8	6379058		2002-04-01	Petteruti et al.	

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	9	7370090		2008-05-01	Nakaoka et al.	
	10	6628417		2003-09-01	Naito et al.	
	11	5519641		1996-05-01	Bears et al.	
	12	6480292		2002-11-01	Sugiyama	
	13	6633395		2003-10-01	Tuchitoi et al.	
	14	6785727		2004-08-01	Yamazaki	
	15	6389010		2002-05-01	Kubler et al.	
	16	6046820		2000-04-01	Konishi	
	17	5166809		1992-11-01	Surbrook	
	18	6654135		2003-11-01	Mitani	
	19	6363452		2002-03-01	Lach	

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	25	5832191		1998-11-01	Thorne	
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	32	6857716		2005-02-01	Nagahashi	
	33	6760745		2004-07-01	Tan et al.	
	34	6043898		2000-03-01	Jacobs	
	35	6452692		2002-09-01	Yacoub	
	36	6745229		2004-06-01	Gobin et al.	
	37	6697848		2004-02-01	Hamilton et al.	
	38	6694371		2004-02-01	Sanai	
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	44	6009464		1999-12-01	Hamilton et al.	

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	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

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☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date (YYYY-MM-DD)	
Name/Print		Registration Number	

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/08a (11-08)
Approved for use through 12/31/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	10053651
Filing Date	2002-01-18
First Named Inventor	Chang
Art Unit	2625
Examiner Name	POPOVICI, DOV
Attorney Docket Number	1282-026/MMM

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6418439		2002-07-01	Papierniak et al.	
	2	6141659		2000-10-01	Barker et al.	
	3	5940843		1999-08-01	Zucknovich et al.	
	4	6546387		2003-04-01	Triggs	
	5	6604135		2003-08-01	Rogers et al.	
	6	6487599		2002-11-01	Smith et al.	
	7	5987454		1999-11-01	Hobbs	
	8	6487587		2002-11-01	Dubey	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10053651
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	First Named Inventor	Chang
	Art Unit	2625
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	Attorney Docket Number	1282-026/MMM

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030160993		2003-08-01	Kang	
	2	20030120754		2003-06-01	Muto et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10053651
	Filing Date	2002-01-18
	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10053651
	Filing Date	2002-01-18
	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date (YYYY-MM-DD)	
Name/Print		Registration Number	

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Lexmark, Exhibit 1002
Lexmark v. Flexiworld

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 03/10/2009

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

EXAMINER	
POPOVICI, DOV	
ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 03/10/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

TITLE OF INVENTION: METHODS FOR UNIVERSAL DATA OUTPUT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	06/10/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590 03/10/2009

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

TITLE OF INVENTION: METHODS FOR UNIVERSAL DATA OUTPUT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	06/10/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
POPOVICI, DOV	2625	358-001150

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

7590 03/10/2009

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

EXAMINER	
POPOVICI, DOV	
ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 03/10/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1254 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1254 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Notice of Allowability	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Dov Popovici	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the RCE request and the amendment filed on 12/19/2008* .

2. ☒ The allowed claim(s) is/are *23-59, renumbered as claims 1-37*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 12/19/2008
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *20090304* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Dov Popovici/
Primary Examiner, Art Unit 2625

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Dov Popovici	2625	

All Participants:

(1) *Dov Popovici*.

(2) *Mark M. Meininger (Reg. No. 32,428)*.

Status of Application: *Non Final*

(3) _____.

(4) _____.

Date of Interview: *5 March 2009*

Time: *12:48 PM*

Type of Interview:
☒ Telephonic
☐ Video Conference
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☒ No
If Yes, provide a brief description: .

Part I.

Rejection(s) discussed:
None

Claims discussed:
24, 32, 35, 38, 41, 46, 51 and 59.

Prior art documents discussed:
None

Part II.

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:
See Continuation Sheet

Part III.

☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.

☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

/Dov Popovici/
Primary Examiner, Art Unit 2625

(Applicant/Applicant's Representative Signature – if appropriate)

Continuation of Substance of Interview including description of the general nature of what was discussed: An examiner's amendment was discussed and agreed to. Claims 24, 32, 35, 38, 41, 46, 51 and 59 are amended for clarity pupose and in order to better clarify the claims over 35 USC 112, 2nd paragraph and/or claim objections (see the attached examiner's amendment for specific detail).

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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mark M. Meininger (Reg. No. 32,428) on March 5, 2009.

The application has been amended as follows:

In the abstract:

In the abstract, line 6, change "said" to --the--.

In the abstract, line 10, change "said" to --the--.

In the claims:

In claim 24, line 5, change "signatures" to --signature--.

In claim 24, line 5, change "biometrics" to --biometric--.

In claim 24, line 6, change "fingerprints" to --fingerprint--.

In claim 32, line 5, change "signatures" to --signature--.

In claim 32, line 5, change "biometrics" to --biometric--.

In claim 32, line 6, change "fingerprints" to --fingerprint--.

In claim 35, line 33, change "operations" to --operation--.

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In claim 38, line 2, change “output” (first occurrence) to --wireless--.

In claim 41, line 2, change “signatures” to --signature--.

In claim 41, line 3, change “keys” to --key--.

In claim 41, line 3, change “biometrics” to --biometric--.

In claim 41, line 3, change “fingerprints” to --fingerprint--.

In claim 46, line 5, change “signatures” to --signature--.

In claim 46, line 5, change “biometrics” to --biometric--.

In claim 46, line 5, change “fingerprints” to --fingerprint--.

In claim 51, line 5, change “signatures” to --signature--.

In claim 51, line 5, change “biometrics” to --biometric--.

In claim 51, line 5, change “fingerprints” to --fingerprint--.

In claim 59, line 2, change “signatures” to --signature--.

In claim 59, line 3, change “keys” to --key--.

In claim 59, line 3, change “biometrics” to --biometric--.

In claim 59, line 3, change “fingerprints” to --fingerprint--.

REASONS FOR ALLOWANCE

The following is an examiner’s statement of reasons for allowance:

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Yoshida (U.S. Patent No. 7,366,468) discloses a printer apparatus including a reception device adapted to wirelessly receive an inquiry signal which is transmitted by a wireless communication apparatus in order to search surrounding devices, and a transmission device adapted to transmit a response signal to the inquiry signal received by the reception device. The response signal includes information indicating that the printer is a specified printer which is pre-registered in the wireless communication apparatus and information indicating that the printer is operating in a printing process (see column 2, lines 35-45).

However, the closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search; selecting at the information apparatus a wireless output device found in the search based at least in part on a received attribute; generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforming at least partly based on said received attribute of the selected output device; converting at the output controller, the intermediate output data into an output data acceptable for rendering at the output device, and conforming at the output device the output data into a data format that is acceptable for rendering by a rendering engine in the output device, and delivering the data format to the rendering engine for output, whereby, the information apparatus is able to output, in a mobile pervasive manner, one or more images representative of said content to an output device

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without the need to install an output device driver specific to that output device, as claimed in independent claim 23.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output device, the device attribute including at least an indication of a supported output device profile; selecting a wireless output device found in the search based at least in part on the received device attribute; conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard parameter; generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforming at least partly to said supported output device profile of a selected output that is included in said device attribute of the selected wireless output device and received over the wireless communication channel; decoding at the output device the intermediate output data; converting at said output device the intermediate output data into an output data format acceptable for rendering by an output engine included in said output device, and whereby the wireless information apparatus is able to pervasively output one or more images representative of said content to an output device without need to install an output device driver specific to that output device, as recited in independent claim 31.

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The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel an attribute corresponding to each discovered wireless device, the attribute including one or more of a name, a device type, a device address, and an indication of a supported output device profile; selecting a wireless output device from among the one or more discovered wireless devices based at least in part on the received attribute; obtaining a security key at the information apparatus, the security key enabling wireless data transfer to the selected output device; sending a security code related at least partly to the security key over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer; receiving over the wireless communication channel a response related to an authentication; and if the received response is positive, establishing a wireless connection channel between the information apparatus and the selected wireless output device, conforming, at the information apparatus, at least part of the content into an output data encoded with at least one format, the conforming relating at least in part to the attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering, receiving at the selected output device the output data, performing at the selected output device at least one decoding operation on said output data, and converting the output data into an output engine data acceptable for rendering by an output engine included in the selected output device, as claimed in independent claim 35.

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The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search; selecting at the information apparatus a selected wireless output device found in the search based at least in part on a received attribute, the selected wireless output device having an associated output controller; conforming at the information apparatus at least part of the content into one or more output images; generating at the information apparatus an intermediate output data that includes said one or more output images; the intermediate output data being at least partly compatible with said received attribute of the selected wireless output device; and wirelessly transmitting the intermediate output data from the information apparatus to the selected wireless output device where the intermediate output data are decoded for rendering at the output device, in combination with accessing, opening, searching wirelessly and establishing a wireless connection, as recited in independent claim 45.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output device, the device attribute including at least an indication of a supported output device profile; selecting a wireless output device found in the search based at least in part on the received device attribute; conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard parameter;

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generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforming at least partly to said supported output device profile of a selected output that is included in said device attribute of the selected wireless output device and received over the wireless communication channel; and delivering the intermediate output data over the wireless connection for rendering at the selected wireless output device for rendering, in combination with opening, searching wirelessly and establishing a point to point wireless connection, as claimed in independent claim 50.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel an attribute corresponding to each discovered wireless device, the attribute including one or more of a name, a device type, a device address, and an indication of a supported output device profile; selecting a wireless output device from among the one or more discovered wireless devices based at least in part on the received attribute; obtaining a security key at the information apparatus, the security key enabling wireless data transfer to the selected output device; sending at least part of the security key over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer; receiving over the wireless communication channel a response related to an authentication; and if the received response is positive, establishing a wireless connection channel between the information apparatus and the selected wireless output device, and conforming, at the information apparatus, at least part of the content into an output data encoded

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with at least one format, the conforming relating at least in part to the attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering, in combination with opening and discovering wirelessly one or more wireless devices that are available for wireless connection, as recited in independent claim 55.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dov Popovici whose telephone number is 571-272-4083. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dov Popovici/
Primary Examiner, Art Unit 2625

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PTO/SB/08a (11-08)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	10053651
Filing Date	2002-01-18
First Named Inventor	Chang
Art Unit	2625
Examiner Name	POPOVICI, DOV
Attorney Docket Number	1282-026/MMM

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
/DP/	1	6798530		2004-09-28	Buckley et al.	
/DP/	2	6421748		2002-07-26	Lin et al.	
/DP/	3	6600569		2003-07-29	Osada et al.	
/DP/	4	6434535		2002-08-13	Kupka et al.	
/DP/	5	6288790		2001-09-11	Yellepeddy et al.	
/DP/	6	6493104		2002-12-10	Cromer et al.	
/DP/	7	6584903		2003-07-01	Jacobs	
/DP/	8	6608928		2003-08-19	Queiroz	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DP/

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/DP/	9	6941014		2005-09-06	Lin et al.	
/DP/	10	5580177		1996-12-03	Gase et al.	
/DP/	11	5596697		1997-01-21	Foster et al.	
/DP/	12	5699495		1997-12-16	Snipp	
/DP/	13	5867633		1999-02-02	Taylor III et al.	
/DP/	14	6246486		2001-06-12	Takahashi	
/DP/	15	6256666		2001-07-03	Singhal	
/DP/	16	6330611		2001-12-11	Itoh et al.	
/DP/	17	6366965		2002-04-02	Binford et al.	
/DP/	18	6453127		2002-09-17	Wood et al.	
/DP/	19	6529522		2003-03-04	Ito et al.	

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/DP/	20	6553431		2003-04-22	Yamamoto et al.	
/DP/	21	6607314		2003-08-19	McCannon et al.	
/DP/	22	6623527		2003-09-23	Hamzy	
/DP/	23	6658625		2003-12-02	Allen	
/DP/	24	6705781		2004-03-16	Iwazaki	
/DP/	25	6751732		2004-06-15	Strobel et al.	
/DP/	26	6788428		2004-09-07	Shimokawa	
/DP/	27	6840441		2005-01-11	Monaghan et al.	
/DP/	28	6020973		2000-02-01	Levine et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear

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Attorney Docket Number	1282-026/MMM

/DP/	1	20020097433		2002-07-25	Chang et al.		
/DP/	2	20020097417		2002-07-25	Chang et al.		
/DP/	3	20020097415		2002-07-25	Chang et al.		
/DP/	4	20020097416		2002-07-25	Chang et al.		
/DP/	5	20020097418		2002-07-25	Chang et al.		
/DP/	6	20020097419		2002-07-25	Chang et al.		
/DP/	7	20020097408		2002-07-25	Chang et al.		

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Lexmark, Exhibit 1002
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		☐

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EXAMINER SIGNATURE

Examiner Signature	/Dov Popovici/	Date Considered	03/04/2009

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DP/

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	Art Unit
	Dov Popovici	2625

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/04/2009								
	1	-								
	2	-								
	3	-								
	4	-								
	5	-								
	6	-								
	7	-								
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12	34	=								
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14	36	=								

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CLAIM		DATE								
Final	Original	03/04/2009								
15	37	=								
16	38	=								
17	39	=								
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36	58	=								
37	59	=								

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	**Art Unit**
	Dov Popovici	2625

ORIGINAL		INTERNATIONAL CLASSIFICATION									
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED				
358	1.15	G	0	6	F	3 / 12 (2006.0)	G	0	6	K	15 / 00 (2006.0)

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
358	1.13	1.14			

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17	11	33	27	49								
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	6		22	16	38	32	54								
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	8	2	24	18	40	34	56								
	9	3	25	19	41	35	57								
	10	4	26	20	42	36	58								
	11	5	27	21	43	37	59								
	12	6	28	22	44										
	13	7	29	23	45										
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	16	10	32	26	48										

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	37	
/Dov Popovici/ Primary Examiner, Art Unit 2625	3/4/2009	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	28	11

U.S. Patent and Trademark Office

Part of Paper No. 20090304

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Lexmark v. Flexiworld

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	Art Unit
	Dov Popovici	2625

SEARCHED

Class	Subclass	Date	Examiner
358	1.15, 1.14, 1.13, 1.16, 1.17, 1.18, 1.1, 1.6, 1.9, 1.2, 1.5, 1.11, 400, 401, 407, 468, 434, 435, 436, 437, 438, 439	3/3/2009	D.P.
347	2, 3, 5, 14, 23	3/3/2009	D.P.
399	1, 8	3/3/2009	D.P.
455	3.01, 557, 151.2	3/3/2009	D.P.

SEARCH NOTES

Search Notes	Date	Examiner
East Search - See attached East Search History - (S1 to S198) - text search with the search area listed above, text search in the US-PGPUB database and within the claims and with the search area listed below (Interference Search), and Inventor Name Search.	3/3/2009 and 3/4/2009	D.P.
Consulted - Gabriel I. Garcia - Class 358	3/3/2009	D.P.
Inventor Name Search	3/4/2009	D.P.

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner
358	1.15, 1.14, 1.13, 1.16, 1.17, 1.18, 1.1, 1.6, 1.9, 1.2, 1.5, 1.11, 400, 401, 407, 468, 434, 435, 436, 437, 438, 439	3/3/2009	D.P.
347	2, 3, 5, 14, 23	3/3/2009	D.P.
399	1, 8	3/3/2009	D.P.
455	3.01, 557, 151.2	3/3/2009	D.P.

	/Dov Popovici/ Primary Examiner, Art Unit 2625

Serial Number	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Dov Popovici	2625	

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	("6798530").PN.	USPAT	OR	OFF	2009/03/03 10:50
S2	1	("6421748").PN.	USPAT	OR	OFF	2009/03/03 10:50
S3	1	("6600569").PN.	USPAT	OR	OFF	2009/03/03 10:53
S4	1	("6434535").PN.	USPAT	OR	OFF	2009/03/03 10:55
S5	1	("6288790").PN.	USPAT	OR	OFF	2009/03/03 10:55
S6	1	("6493104").PN.	USPAT	OR	OFF	2009/03/03 10:57
S7	1	("6584903").PN.	USPAT	OR	OFF	2009/03/03 10:59
S8	1	("6608928").PN.	USPAT	OR	OFF	2009/03/03 10:59
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S13	1	("5867633").PN.	USPAT	OR	OFF	2009/03/03 11:02
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S15	1	("6256666").PN.	USPAT	OR	OFF	2009/03/03 11:03
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S18	1	("6453127").PN.	USPAT	OR	OFF	2009/03/03 11:04
S19	1	("6529522").PN.	USPAT	OR	OFF	2009/03/03 11:05
S20	1	("6553431").PN.	USPAT	OR	OFF	2009/03/03 11:18
S21	1	("6607314").PN.	USPAT	OR	OFF	2009/03/03 11:18
S22	1	("6623527").PN.	USPAT	OR	OFF	2009/03/03 11:18
S23	1	("6658625").PN.	USPAT	OR	OFF	2009/03/03 11:19

S24	1	("6705781").PN.	USPAT	OR	OFF	2009/03/03 11:19
S25	1	("6751732").PN.	USPAT	OR	OFF	2009/03/03 11:20
S26	1	("6788428").PN.	USPAT	OR	OFF	2009/03/03 11:21
S27	1	("6840441").PN.	USPAT	OR	OFF	2009/03/03 11:22
S28	1	("6020973").PN.	USPAT	OR	OFF	2009/03/03 11:22
S29	1	("20020097433").PN.	US-PGPUB	OR	OFF	2009/03/03 11:23
S30	1	("20020097417").PN.	US-PGPUB	OR	OFF	2009/03/03 11:23
S31	1	("20020097415").PN.	US-PGPUB	OR	OFF	2009/03/03 11:25
S32	1	("20020097416").PN.	US-PGPUB	OR	OFF	2009/03/03 11:26
S33	1	("20020097418").PN.	US-PGPUB	OR	OFF	2009/03/03 11:27
S34	1	("20020097419").PN.	US-PGPUB	OR	OFF	2009/03/03 11:27
S35	1	("20020097408").PN.	US-PGPUB	OR	OFF	2009/03/03 11:27
S36	35	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12 or S13 or S14 or S15 or S16 or S17 or S18 or S19 or S20 or S21 or S22 or S23 or S24 or S25 or S26 or S27 or S28 or S29 or S30 or S31 or S32 or S33 or S34 or S35	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:29
S37	23979	(search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:33
S38	14552729	((attribut$5) or (name$3) or (type$2) or address$3 or (ID$2) or (profile$3) or (security near3 code$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:36
S39	5987812	((attribut$5) or (device$2 near3 name$3) or (device$2 near3 type$2) or (address$3) or (ID$2) or (profile$3) or (security near3 code$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:37
S40	55316	(S39) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:38

S41	3248	S40 same S37	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:39
S42	7103693	conform$3 or rasterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:41
S43	314	S40 same S37 same S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:42
S44	0	S43 and S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:42
S45	6310	S40 and S37 and S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:43
S46	1	S45 and S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:43
S47	110999	(S38) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:46
S48	23979	(search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:51
S49	14552729	((attribut$5) or (name$3) or (type$2) or address$3 or (ID$2) or (profile$3) or (security near3 code$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:51

S50	110999	(S49) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:51
S51	12401	S48 and S50	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:51
S52	7103693	conform$3 or rasterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:52
S53	8718	S48 and S50 and S52	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:52
S54	1	("6798530").PN.	USPAT	OR	OFF	2009/03/03 11:52
S55	1	("6421748").PN.	USPAT	OR	OFF	2009/03/03 11:52
S56	1	("6600569").PN.	USPAT	OR	OFF	2009/03/03 11:52
S57	1	("6434535").PN.	USPAT	OR	OFF	2009/03/03 11:52
S58	1	("6288790").PN.	USPAT	OR	OFF	2009/03/03 11:52
S59	1	("6493104").PN.	USPAT	OR	OFF	2009/03/03 11:52
S60	1	("6584903").PN.	USPAT	OR	OFF	2009/03/03 11:52
S61	1	("6608928").PN.	USPAT	OR	OFF	2009/03/03 11:52
S62	1	("6941014").PN.	USPAT	OR	OFF	2009/03/03 11:52
S63	1	("5580177").PN.	USPAT	OR	OFF	2009/03/03 11:52
S64	1	("5596697").PN.	USPAT	OR	OFF	2009/03/03 11:52
S65	1	("5699495").PN.	USPAT	OR	OFF	2009/03/03 11:52
S66	1	("5867633").PN.	USPAT	OR	OFF	2009/03/03 11:52
S67	1	("6246486").PN.	USPAT	OR	OFF	2009/03/03 11:52
S68	1	("6256666").PN.	USPAT	OR	OFF	2009/03/03 11:52

S69	1	("6330611").PN.	USPAT	OR	OFF	2009/03/03 11:52
S70	1	("6366965").PN.	USPAT	OR	OFF	2009/03/03 11:52
S71	1	("6453127").PN.	USPAT	OR	OFF	2009/03/03 11:52
S72	1	("6529522").PN.	USPAT	OR	OFF	2009/03/03 11:52
S73	1	("6553431").PN.	USPAT	OR	OFF	2009/03/03 11:52
S74	1	("6607314").PN.	USPAT	OR	OFF	2009/03/03 11:52
S75	1	("6623527").PN.	USPAT	OR	OFF	2009/03/03 11:52
S76	1	("6658625").PN.	USPAT	OR	OFF	2009/03/03 11:52
S77	1	("6705781").PN.	USPAT	OR	OFF	2009/03/03 11:52
S78	1	("6751732").PN.	USPAT	OR	OFF	2009/03/03 11:52
S79	1	("6788428").PN.	USPAT	OR	OFF	2009/03/03 11:52
S80	1	("6840441").PN.	USPAT	OR	OFF	2009/03/03 11:52
S81	1	("6020973").PN.	USPAT	OR	OFF	2009/03/03 11:52
S82	1	("20020097433").PN.	US-PGPUB	OR	OFF	2009/03/03 11:52
S83	1	("20020097417").PN.	US-PGPUB	OR	OFF	2009/03/03 11:52
S84	1	("20020097415").PN.	US-PGPUB	OR	OFF	2009/03/03 11:52
S85	1	("20020097416").PN.	US-PGPUB	OR	OFF	2009/03/03 11:52
S86	1	("20020097418").PN.	US-PGPUB	OR	OFF	2009/03/03 11:52
S87	1	("20020097419").PN.	US-PGPUB	OR	OFF	2009/03/03 11:52
S88	1	("20020097408").PN.	US-PGPUB	OR	OFF	2009/03/03 11:52
S89	35	S54 or S55 or S56 or S57 or S58 or S59 or S60 or S61 or S62 or S63 or S64 or S65 or S66 or S67 or S68 or S69 or S70 or S71 or S72 or S73 or S74 or S75 or S76 or S77 or S78 or S79 or S80 or S81 or S82 or S83 or S84 or S85 or S86 or S87 or S88	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:52
S90	1	S48 and S50 and S52 and S89	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 11:52
S91	0	("11andl37").PN.	US-PGPUB	OR	OFF	2009/03/03 12:00

S92	1	S48 and S84	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:00
S93	0	S50 and S84	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:01
S94	1	S49 and S84	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:01
S95	1	S52 and S84	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:01
S96	13965	S48 and S49 and S52	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:02
S97	8	S48 and S49 and S52 and S89	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:03
S98	30938	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 12:16
S99	4127	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 12:16
S100	5251	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 12:16

S101	3229	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 12:16
S102	43074	S98 or S99 or S100 or S101	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:17
S103	241	S102 and (S48 and S49 and S52)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:18
S104	2512640	intermediat$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 12:20
S105	23979	(search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 13:28
S106	14552729	((attribut$5) or (name$3) or (type$2) or address$3 or (ID$2) or (profile$3) or (security near3 code$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 13:28
S107	7103693	conform$3 or rasterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 13:28
S108	30938	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 13:28
S109	4127	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 13:28

S110	5251	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 13:28
S111	3229	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 13:28
S112	43074	S108 or S109 or S110 or S111	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 13:28
S113	2512640	intermediat$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 13:28
S114	57	S112 and (S105 and S106 and S107 and S113)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 13:28
S115	23979	(search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:13
S116	23979	(search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:25
S117	14552729	((attribut$5) or (name$3) or (type$2) or address$3 or (ID$2) or (profile$3) or (security near3 code$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:25
S118	7103693	conform$3 or rasterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:25

S119	30938	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 16:25
S120	4127	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 16:25
S121	5251	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 16:25
S122	3229	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 16:25
S123	43074	S119 or S120 or S121 or S122	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:25
S124	241	S123 and (S116 and S117 and S118)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:25
S125	5987812	((attribut$5) or (device$2 near3 name$3) or (device$2 near3 type$2) or (address$3) or (ID$2) or (profile$3) or (security near3 code$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:26
S126	217	S123 and (S116 and S125 and S118)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:27
S127	136083	intermediat$5 same (image$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:28

S128	30727	intermediat$5 same (image$3) same S117	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:29
S129	10057	intermediat$5 same (image$3) same S125	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:29
S130	22	S123 and (S116 and S117 and S118) and S127	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:30
S131	15	S123 and (S116 and S117 and S118) and S128	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:30
S132	9	S123 and (S116 and S117 and S118) and S129	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:31
S133	22	S123 and (S116 and S125 and S118) and S127	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:31
S134	15	S123 and (S116 and S125 and S118) and S128	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:32
S135	9	S123 and (S116 and S125 and S118) and S129	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 16:32
S136	2935	((search$5 or discover$5 or lock$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:00

S137	1046014	(((attribut$5) or (name$3) or (type$2) or address$3 or (ID$2) or (profile$3) or (security near3 code$2))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:02
S138	958389	(conform$3 or rasterization or rasteriz$5 or scaling or scal$5 or interpolat$5 or decod$3 or encod$3 or filter$3 or compress$3).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:03
S139	2935	((search$5 or discover$5 or lock$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:03
S140	238	S139 and S137 and S138	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:03
S141	318298	(intermediat$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:04
S142	15	S139 and S137 and S138 and S141	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:05
S143	12439	(intermediat$5 same (image$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:42
S144	3	S139 and S138 and S137 and S143	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:43
S145	100813	(access$5 and open$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:47

S146	0	S139 and S138 and S137 and S143 and S145	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:48
S147	52	(((search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))) and (access$5) and (open $5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:50
S148	6	(((search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))) and (access$5) and (open $5) and (attribut$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:50
S149	1	(((search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))) and (access$5) and (open $5) and (attribut$5) and (intermediat$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:51
S150	4	(((search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))) and (attribut$5) and (intermediat$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:51
S151	3	(((search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))) and (attribut$5) and (intermediat$5) and (image$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:53
S152	0	(((search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))) and (attribut$5) and (intermediat$5) and (image$3) and (decod$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:54
S153	1	(((search$5 or discover$5 or look$3 or find$3 or found$3) with ((wireless$5) or (wire$2 adj less$3) or (wire$less$5))) and (attribut$5) and (intermediat$5) and (image$3) and (conform$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:55
S154	1187545	(((attribut$5) or (device$2 near3 name$3) or (device$2 near3 type$2) or (address$3) or (ID$2) or (profile$3) or (security near3 code$2))).ab.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:57

S155	63	S139 and S138 and S154	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:57
S156	3	S139 and S138 and S154 and S141	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 17:58
S157	30938	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 18:01
S158	4127	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 18:01
S159	5251	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 18:01
S160	3229	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/03/03 18:01
S161	43074	S157 or S158 or S159 or S160	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:01
S162	55	S161 and S139	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:01
S163	6	S161 and S140	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:01

S164	1057	S161 and S141	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:02
S165	2	S161 and S142	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:02
S166	496	S161 and S143	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:04
S167	1	S161 and S147	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:04
S168	1	S161 and S148	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:06
S169	0	S161 and S150	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:06
S170	0	S161 and S151	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:07
S171	4	S161 and S155	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:07
S172	1	S161 and S156	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/03 18:09

S173	114	(William$5 near9 Chang$5).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:32
S174	38	(Christina$5 near9 Liu$5).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:33
S175	124	S173 or S174	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:33
S176	37	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:35
S177	26	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:36
S178	25	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:37
S179	15	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:37
S180	30	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3))).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:38
S181	9	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:38

S182	6	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:38
S183	6	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:39
S184	15	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search$5 or discover$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:39
S185	2	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search $5 or discover$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:40
S186	15	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (decod$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:42
S187	0	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search $5 or discover$5) and (decod$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:43
S188	15	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (profil$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:44
S189	2	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search $5 or discover$5) and (profil$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:44
S190	15	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (profil$5) and (predefin$5 or parameter$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:46

S191	2	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (profil$5) and (predefin$5 or parameter$3)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:46
S192	15	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (profil$5) and (predefin$5 or parameter$3) and (open$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:47
S193	0	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (profil$5) and (predefin$5 or parameter$3) and (open$3)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:47
S194	15	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (intermediat$5) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (security or secur$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:48
S195	16	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (security or secur$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:50
S196	4	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (attribut$5) and (conform$5) and (search$5 or discover$5) and (security or secur$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:50
S197	15	(S173 or S174) and ((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (attribut$5) and (conform$5) and (search$5 or discover$5) and ((security or secur$5) near5 (key$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:51
S198	1	(S173 or S174) and ((((wireless$5) or (wire$less$5) or (wire$3 adj less$3)) and (attribut$5) and (conform$5) and (search$5 or discover$5) and ((security or secur$5) near5 (key$3))).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/03/04 08:52

3/4/2009 10:02:31 AM
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connected to a static network. In this invention, through local communication and synchronization between an information apparatus and an output device, installation of hardware and software to maintain static network connectivity may not be necessary to enable the rendering of content to an output device.

[0038] According to the several aspects of the present invention there is provided the subject matter defined in the appended independent claims.

[0039] Additional objects and advantages of the present invention will be apparent from the detailed description of the preferred embodiment thereof, which proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040] Fig. 1A is a flow diagram of a conventional data output method and its corresponding raster image process in accordance with prior art.

[0041] Fig. 1B is a flow diagram of a second conventional data output method and its corresponding raster image process for an output device that includes a conventional printer controller in accordance with prior art.

[0042] Figs. 2A and 2B are block diagrams illustrating components of an operating environment that can implement the process and apparatus of the present invention.

[0043] Fig. 3A is a schematic block diagram illustrating hardware/software components of an information apparatus implementation in accordance with present invention. The information apparatus includes an operating system.

[0044] Fig. 3B is a second schematic block diagram illustrating hardware/software components of an information apparatus implementation in accordance with present invention.

[0045] Fig. 4A is a block diagram of a conventional printing system or printer with a conventional printer controller.

[0046] Fig. 4B is a block diagram of a second conventional output system or output device.

[0047] Fig. 5A is a schematic block diagram of a printing system or printer with a conventional printer controller and an output controller in accordance with present invention.

[0048] Fig. 5B is a schematic block diagram of a second output system or output device that includes an output controller in accordance with present invention.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

PTO/SB/30EFS (11-08)
Approved for use through 12/31/2008. OMB 0651-0031
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	10/053,651	Filing Date	2002-01-18	Docket Number (if applicable)	1282-026/MMM	Art Unit	2625
First Named Inventor	Chang			Examiner Name	Popovici, Dov		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☐ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No _____

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

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Signature of Registered U.S. Patent Practitioner			
Signature	/Mark M. Meininger/	Date (YYYY-MM-DD)	2008-12-19
Name	Mark M. Meininger	Registration Number	32428

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Chang
Application Number: 10/053,651
Confirmation No.: 4711
Filing Date: January 18, 2002
Title: Methods for Universal Data Output

Examiner: Popovici, Dov
Art Unit: 2651

AMENDMENT

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Please amend the application as follows in accordance with a request for continued examination filed herewith.

In the claims:

All claims in the application are indicated below.

1-22 (canceled)

23. (currently amended) A pervasive mobile data output method for rendering at an output device content at least partly accessible with an information apparatus, the information apparatus ~~includes~~ including at least one wireless communication unit, the pervasive mobile output method comprising:

accessing at the information apparatus at least part of said content;

opening at the information apparatus a wireless communication channel;

searching wirelessly at the information apparatus for wireless output devices available for wireless communication;

receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search;

selecting at the information apparatus a wireless output device found in the search based at least in part on a received attribute;

conforming at the information apparatus at least part of the content into one or more output images;

generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data ~~conforms~~ conforming at least partly based on said received attribute of the selected output device;

establishing a wireless connection between the information apparatus and the selected wireless output device;

transmitting the intermediate output data from the information apparatus to an output controller that is distinct from the information apparatus and associated with the selected output device, the output controller ~~includes~~ including at least one wireless communication unit;

converting at the output controller, the intermediate output data into an output data acceptable for rendering at the output device, and delivering the output data to the output device for rendering;

conforming at the output device the output data into a data format that is acceptable for rendering by a rendering engine in the output device, and delivering the data format to the rendering engine for output,

whereby, the information apparatus is able to output, in a mobile pervasive manner, one or more images representative of said content to an output device without the need to install an output device driver specific to that output device.

24. (previously presented) The method of claim 23 in which establishing a wireless connection with the selected wireless output device comprises authenticating wireless access to the output device by sending over the wireless communication channel one or more of a name, a password or security code, an ID number or address, a signatures, a physical or digital security key, biometrics, a fingerprints, and a voice.

25. (previously presented) The method of claim 23 in which the receiving at least one attribute over the wireless communication channel comprises receiving one or more of a device name, a device type, an address or ID number, an indication of a supported device profile, a device profile, and a security code.

26. (previously presented) The method of claim 23 further comprising obtaining at the information apparatus one or more rasterization parameters corresponding to the output device and related at least in part to the received attribute from the output device or from user input.

27. (previously presented) The method of claim 23 in which the conforming at the information apparatus at least part of the content into one or more output images includes one or more of a rasterization operation, a scaling operation, an interpolation operation, a decoding operation, an encoding operation, a filtering operation and a compression operation.

28. (previously presented) The method of claim 23 in which the content includes one or more of a text, a graphics element data, a video data, an audio data, and an image data.

29. (previously presented) The method of claim 23 in which the output controller is included in the output device.

30. (previously presented) The method of claim 23 further comprising performing at the output controller one or more processing operations on the one or more output images included in the intermediate output data, the one or more processing operations including one or more of a color correction operation, a color matching operation, a color management operation, a scaling operation, an interpolation operation, a color space conversion, a compression operation, an audio processing and a halftoning operation.

31. (currently amended) A pervasive mobile data output method for rendering content to an output device from a mobile wireless information apparatus, the content being at least partly accessible with the information apparatus, the output device being a distinct device from the information apparatus and ~~includes~~ including a wireless communication unit, the method comprising:

opening a wireless communication channel at the information apparatus;

searching wirelessly at the information apparatus for wireless output devices available for wireless communication;

receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output device, the device attribute including at least an indication of a supported output device profile;

selecting a wireless output device found in the search based at least in part on the received device attribute;

conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard ~~parameters~~ parameter;

generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data ~~conforms~~ conforming at least partly to said supported output device profile of a selected output that is included in said device attribute of the selected wireless output device and received over the wireless communication channel;

establishing a point to point wireless connection between the information apparatus and the selected output device;

delivering the intermediate output data over the wireless connection for rendering at the selected wireless output device;

decoding at the output device the intermediate output data;

converting at said output device the intermediate output data into an output data format acceptable for rendering by an output engine included in said output device, and

sending the output data to the output engine for rendering, whereby the wireless information apparatus is able to pervasively output one or more images representative of said content to an output device without need to install an output device driver specific to that output device.

32. (previously presented) The method of claim 31 in which establishing a wireless connection with the selected wireless output device comprises authenticating wireless access to the output device by sending over the wireless communication channel one or more of a name, a password or security code, an ID number or address, a signatures, a physical or digital security key, biometrics, a fingerprints, and a voice.

33. (previously presented) The method of claim 31 in which the receiving at least one attribute over the wireless communication channel comprises receiving one or more of a device name, a device type, an address or ID number, an indication of a supported device profile, a device profile, and a security code.

34. (previously presented) The method of claim 31 in which the intermediate output data conforms at least partly to said at least one device attribute received over the communication channel and relating to the selected output device.

35. (currently amended) A method of mobile wireless data output from an information apparatus with access to at least part of a content to a wireless output device by short range wireless communication, wherein the information apparatus includes at least one wireless communication unit and ~~being~~ is a distinct device from the output device, the method comprising:

opening a wireless communication channel;

discovering wirelessly one or more wireless ~~device~~ devices that ~~is~~ are available for wireless connection;

receiving over the wireless communication channel an attribute corresponding to each discovered wireless device ~~found in a search~~, the attribute ~~includes~~ including one or more of a name, a device type, a device address, and an indication of a supported output device profile;

selecting a wireless output device from among ~~a list of~~ the one or more discovered wireless devices ~~found in the search and~~ based at least in part on the received attribute;

obtaining a security key at the information apparatus, the security key enabling wireless data transfer to the selected output device;

sending ~~the~~ a security code related at least partly to the security key over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer;

receiving over the wireless communication channel a response related to an authentication; and

if the received response is positive,

establishing a wireless connection channel between the information apparatus and the selected wireless output device,

conforming, at the information apparatus, at least part of the content into an output data encoded with at least one format, the conforming relating at least in part to the attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering,

receiving at the selected output device the output data,

performing at the selected output device at least one decoding operations on said output data, and converting the output data into an output engine data acceptable for rendering by an output engine included in the selected output device.

36. (previously presented) The method according to claim 35 in which the information apparatus is one of a mobile phone, a digital camera, a laptop, and a PDA.

37. (previously presented) The method according to claim 35 in which the output device is one of a printer, a projection, a copier, a speaker, an audio output device, a display screen, and a TV.

38. (previously presented) The method of claim 35 in which discovering the one or more output devices includes one or more output devices posting their availability as discoverable and the information apparatus finding one or more output devices.

39. (previously presented) The method of claim 35 further comprising:

obtaining a payment information at the information apparatus, the payment information enabling data rendering service by the selected output device;

sending the payment information over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for enabling data rendering service.

40. (previously presented) The method of claim 35 in which the conforming, at the information apparatus, related at least in part to the supported output device profile of the selected output device and included in said attribute received over the wireless communication channel.

41. (previously presented) The method of claim 35 in which said security key comprises at least one of a user name, password, ID number, signatures, physical or digital security keys, biometrics, fingerprints, and a voice.

42. (previously presented) The method of claim 35 in which the step of obtaining said security key comprises inputting by a user or retrieving a key that was previously stored in the information apparatus.

43. (previously presented) The method of claim 35 further comprising:

receiving at the output device and over the wireless communication channel established a security key for authentication;

comparing the received security key with an access control list stored in the output device or input by a user; and

if the step of comparing the received security key with an access control list is successful, granting the information apparatus a secured wireless connection channel access to the output device.

44. (previously presented) The method of claim 35 in which the step of obtaining said security key comprises inputting by a user and the method further comprises:

receiving at the information apparatus and over the wireless communication channel established with the wireless output device a security key for authentication;

comparing the received security key with the security key input by the user; and

if the step of comparing the received security key is successful, granting the wireless output device a secured wireless communication connection to the information apparatus, thereby enabling a two way authentication and verification for a secured bi-directional wireless communication.

45. (new) A pervasive mobile data output method for rendering at an output device content that is at least partly accessible with an information apparatus, the information apparatus being a distinct device from the output device and including a wireless communication unit, the output device including a wireless communication unit for wireless communication, a controller for decoding intermediate output data received at the output device, and a rendering engine, the pervasive mobile output method comprising:

accessing at the information apparatus at least part of said content;

opening at the information apparatus a wireless communication channel;

searching wirelessly at the information apparatus for wireless output devices available for wireless communication;

receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search;

selecting at the information apparatus a selected wireless output device found in the search based at least in part on a received attribute, the selected wireless output device having an associated output controller;

conforming at the information apparatus at least part of the content into one or more output images;

generating at the information apparatus an intermediate output data that includes said one or more output images; the intermediate output data being at least partly compatible with said received attribute of the selected wireless output device;

establishing a wireless connection between the information apparatus and the selected wireless output device;

wirelessly transmitting the intermediate output data from the information apparatus to the selected wireless output device where the intermediate output data are decoded for rendering at the output device.

46. (new) The method of claim 45 in which establishing a wireless connection with the selected wireless output device comprises authenticating wireless access to the output device by sending over the wireless communication channel one or more of a name, a password or security code, an ID number or address, a signatures, a physical or digital security key, biometrics, a fingerprints, and a voice.

47. (new) The method of claim 45 in which the receiving at least one attribute over the wireless communication channel comprises receiving one or more of a device name, a device type, an address or ID number, an indication of a supported device profile, a device profile, and a security code.

48. (new) The method of claim 45 in which the conforming at the information apparatus of at least part of the content into one or more output images includes one or more of a rasterization operation, a scaling operation, an interpolation operation, a decoding operation, an encoding operation, a filtering operation and a compression operation.

49. (new) The method according to claim 45 in which the information apparatus is one of a personal computer, a mobile phone, a smart phone, a digital camera, a laptop, and a PDA.

50. (new) A pervasive mobile data output method for rendering content to an output device from a mobile wireless information apparatus, the content being at least partly accessible with the information apparatus, the output device being a distinct device from the information apparatus and including a wireless communication unit, the method comprising:

opening a wireless communication channel at the information apparatus;

searching wirelessly at the information apparatus for wireless output devices available for wireless communication;

receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output device, the device attribute including at least an indication of a supported output device profile;

selecting a wireless output device found in the search based at least in part on the received device attribute;

conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard parameter;

generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforming at least partly to said supported output device profile of a selected output that is included in said device attribute of the selected wireless output device and received over the wireless communication channel;

establishing a point to point wireless connection between the information apparatus and the selected output device; and

delivering the intermediate output data over the wireless connection for rendering at the selected wireless output device for rendering.

51. (new) The method of claim 50 in which establishing a wireless connection with the selected wireless output device comprises authenticating wireless access to the output device by sending over the wireless communication

channel one or more of a name, a password or security code, an ID number or address, a signatures, a physical or digital security key, biometrics, a fingerprints, and a voice.

52. (new) The method of claim 50 in which the receiving at least one attribute over the wireless communication channel comprises receiving one or more of a device name, a device type, an address or ID number, an indication of a supported device profile, a device profile, and a security code.

53. (new) The method according to claim 50 in which the information apparatus is one of a personal computer, a mobile phone, a smart phone, a digital camera, a laptop, and a PDA.

54. (new) The method according to claim 50 in which the output device is one of a printer, a projection, a copier, a speaker, an audio output device, a display screen, and a TV.

55. (new) A method of mobile wireless data output from an information apparatus with access to at least part of a content to a wireless output device by short range wireless communication, wherein the information apparatus includes at least one wireless communication unit and is a distinct device from the output device, the method comprising:

opening a wireless communication channel;

discovering wirelessly one or more wireless devices that are available for wireless connection;

receiving over the wireless communication channel an attribute corresponding to each discovered wireless device, the attribute including one or more of a name, a device type, a device address, and an indication of a supported output device profile;

selecting a wireless output device from among the one or more discovered wireless devices based at least in part on the received attribute;

obtaining a security key at the information apparatus, the security key enabling wireless data transfer to the selected output device;

sending at least part of the security key over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer;

receiving over the wireless communication channel a response related to an authentication; and

if the received response is positive,

establishing a wireless connection channel between the information apparatus and the selected wireless output device, and

conforming, at the information apparatus, at least part of the content into an output data encoded with at least one format, the conforming relating at least in part to the attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering.

56. (new) The method according to claim 55 in which the information apparatus is one of a personal computer, a mobile phone, a smart phone, a digital camera, a laptop, and a PDA.

57. (new) The method according to claim 55 in which the output device is one of a printer, a projection, a copier, a speaker, an audio output device, a display screen, and a TV.

58. (new) The method of claim 55 in which the conforming, at the information apparatus, related at least in part to the supported output device profile of the selected output device and included in said attribute received over the wireless communication channel.

59. (new) The method of claim 55 in which said security key comprises at least one of a user name, password, ID number, signatures, physical or digital security keys, biometrics, fingerprints, and a voice.

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Remarks

Claims 23-59 are in the application. Claims 23, 31, 35, 45, 50, and 55 are in independent form. Reconsideration is requested.

Claims 23-44 have been allowed over the art of record. Claims 23, 31 and 35 are amended to address minor grammatical errors.

New claims 45-59 are added. New independent claims 45, 50, and 55 include subject matter analogous to claims 23, 31, and 35. New dependent claims correspond to existing dependent claims as set forth below:

New Claim	Existing claim
46	24
47	25
48	27
49	36
51	32
52	33
53	36
54	37
56	36
57	37
58	40
59	41

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Applicant believes the application is in condition for consideration.

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Respectfully Submitted,

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PTO/SB/08a (11-08)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	10053651
Filing Date	2002-01-18
First Named Inventor	Chang
Art Unit	2625
Examiner Name	POPOVICI, DOV
Attorney Docket Number	1282-026/MMM

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6798530		2004-09-28	Buckley et al.	
	2	6421748		2002-07-26	Lin et al.	
	3	6600569		2003-07-29	Osada et al.	
	4	6434535		2002-08-13	Kupka et al.	
	5	6288790		2001-09-11	Yellepeddy et al.	
	6	6493104		2002-12-10	Cromer et al.	
	7	6584903		2003-07-01	Jacobs	
	8	6608928		2003-08-19	Queiroz	

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	Application Number	10053651
	Filing Date	2002-01-18
	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

	9	6941014		2005-09-06	Lin et al.	
	10	5580177		1996-12-03	Gase et al.	
	11	5596697		1997-01-21	Foster et al.	
	12	5699495		1997-12-16	Snipp	
	13	5867633		1999-02-02	Taylor III et al.	
	14	6246486		2001-06-12	Takahashi	
	15	6256666		2001-07-03	Singhal	
	16	6330611		2001-12-11	Itoh et al.	
	17	6366965		2002-04-02	Binford et al.	
	18	6453127		2002-09-17	Wood et al.	
	19	6529522		2003-03-04	Ito et al.	

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	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

	20	6553431		2003-04-22	Yamamoto et al.	
	21	6607314		2003-08-19	McCannon et al.	
	22	6623527		2003-09-23	Hamzy	
	23	6658625		2003-12-02	Allen	
	24	6705781		2004-03-16	Iwazaki	
	25	6751732		2004-06-15	Strobel et al.	
	26	6788428		2004-09-07	Shimokawa	
	27	6840441		2005-01-11	Monaghan et al.	
	28	6020973		2000-02-01	Levine et al.	

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	Filing Date	2002-01-18
	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

	1	20020097433		2002-07-25	Chang et al.	
	2	20020097417		2002-07-25	Chang et al.	
	3	20020097415		2002-07-25	Chang et al.	
	4	20020097416		2002-07-25	Chang et al.	
	5	20020097418		2002-07-25	Chang et al.	
	6	20020097419		2002-07-25	Chang et al.	
	7	20020097408		2002-07-25	Chang et al.	

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	Application Number	10053651
	Filing Date	2002-01-18
	First Named Inventor	Chang
	Art Unit	2625
	Examiner Name	POPOVICI, DOV
	Attorney Docket Number	1282-026/MMM

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date (YYYY-MM-DD)	
Name/Print		Registration Number	

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Electronic Patent Application Fee Transmittal

Application Number:	10053651
Filing Date:	18-Jan-2002
Title of Invention:	METHODS FOR UNIVERSAL DATA OUTPUT
First Named Inventor/Applicant Name:	William Ho Chang
Filer:	Mark Meininger
Attorney Docket Number:	

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	15	26	390
Independent claims in excess of 3	2201	3	110	330
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

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Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**1125**

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Electronic Acknowledgement Receipt

EFS ID:	4497674
Application Number:	10053651
International Application Number:	
Confirmation Number:	4711
Title of Invention:	METHODS FOR UNIVERSAL DATA OUTPUT
First Named Inventor/Applicant Name:	William Ho Chang
Correspondence Address:	MR. WILLIAM H. CHANG FLEXIWORLD TECHNOLOGIES, INC. PMB 267 3439 N.E. SANDY BLVD. PORTLAND OR 97232-1959 US - -
Filer:	Mark Meininger
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	19-DEC-2008
Filing Date:	18-JAN-2002
Time Stamp:	22:27:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1125

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RAM confirmation Number	7213
Deposit Account	
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	sb0030e_fill.pdf	697244 67edbaf6d00fb636a93f8abd3ddd509f79b0d393	no	3
Warnings:					
Information:					
2	Amendment Submitted/Entered with Filing of CPA/RCE	10053651RCEAmendFiled.pdf	95248 a38d99b9a85896fd21f7c9d93c98d80bb3ceae06	no	14
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Filed (SB/08)	10053651IDS.pdf	608961 8cf31e16c958e8d555931bc159ca4f91ebcb66c2	no	7
Warnings:					
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4	Fee Worksheet (PTO-06)	fee-info.pdf	33320 e5130768c67ad3507bc42c3ee9ef0e3e9f969eb0	no	2
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PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/053,651	Filing Date 01/18/2002	☐ To be Mailed

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 12/19/2008	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 37	Minus	** 22	= 15	X $26 =	390	OR	X $ =	
Independent (37 CFR 1.16(h))	* 6	Minus	***3	= 3	X $110 =	330	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	**720**	OR	TOTAL ADD'L FEE	

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/TRINA L. RIDDICK/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 12/08/2008

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

EXAMINER	
POPOVICI, DOV	
ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 12/08/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

TITLE OF INVENTION: METHODS FOR UNIVERSAL DATA OUTPUT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	03/09/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590 12/08/2008

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

TITLE OF INVENTION: METHODS FOR UNIVERSAL DATA OUTPUT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	03/09/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
POPOVICI, DOV	2625	358-001150

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

7590 12/08/2008

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
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3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

EXAMINER	
POPOVICI, DOV	
ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 12/08/2008

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1254 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1254 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

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Lexmark v. Flexiworld

Notice of Allowability	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Dov Popovici	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendments filed on 01/23/2007 and 11/28/2008*.

2. ☒ The allowed claim(s) is/are *23-44, renumbered as claims 1-22*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *20081126* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Dov Popovici/
Primary Examiner, Art Unit 2625

Interview Summary	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Dov Popovici	2625	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Dov Popovici*. (3)_____.

(2) *Mark M. Meininger (Reg. No. 32,428)*. (4)_____.

Date of Interview: *11/28/08 &11/30/08*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *23,24,26,31,32,34,35,38 and 40-44*.

Identification of prior art discussed: *None*.

Agreement with respect to the claims f)☒ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *An examiner's amendment was discussed and agreed to. Claims 23-24, 26, 31-32, 34-35, 38 and 40-44 are amended for clarity purpose and in order to better clarify the claims and to provide proper and/or clear antecedent basis (see the attached examiner's amendment and the amendment filed on 11/28/08 for specific details)*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Dov Popovici/ Primary Examiner, Art Unit 2625	

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mark M. Meininger (Reg. No. 32,428) on 11/30/2008.

The application has been amended as follows:

In the claims:

In claim 35, line 17, after "security", change "code" to --key--.

In claim 38, line 1, after "discovering", delete "the".

In claim 41, line 3, after "security", change "keys" to --key--.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

Yoshida (U.S. Patent No. 7,366,468) discloses a printer apparatus including a reception device adapted to wirelessly receive an inquiry signal which is transmitted by a wireless communication apparatus in order to search surrounding devices, and a transmission device adapted to transmit a response signal to the inquiry signal received by the reception device. The response signal includes information indicating that the printer is a specified printer which is pre-

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Lexmark v. Flexiworld

registered in the wireless communication apparatus and information indicating that the printer is operating in a printing process (see column 2, lines 35-45).

However, the closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search; selecting at the information apparatus a wireless output device found in the search based at least in part on a received attribute; generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforms at least partly based on said received attribute of the selected output device; converting at the output controller, the intermediate output data into an output data acceptable for rendering at the output device, and conforming at the output device the output data into a data format that is acceptable for rendering by a rendering engine in the output device, and delivering the data format to the rendering engine for output, whereby, the information apparatus is able to output, in a mobile pervasive manner, one or more images representative of said content to an output device without the need to install an output device driver specific to that output device, as claimed in independent claim 23.

The closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output device, the attribute including at least an indication of a

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supported output device profile; selecting a wireless output device found in the search based at least in part on the received device attribute; conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard parameters; generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforms at least partly to said supported output device profile of a selected output that is included in said attribute of the selected output device and received over the wireless communication channel; decoding at the output device the intermediate output data; converting at said output device the intermediate output data into an output data format acceptable for rendering by an output engine included in said output device, and whereby the wireless information apparatus is able to pervasively output one or more images representative of said content to an output device without need to install an output device driver specific to that output device, as recited in independent claim 31.

Furthermore, the closest prior art of record, Yoshida (U.S. Patent No. 7,366,468) does not disclose, teach or suggest, receiving over the wireless communication channel an attribute corresponding to each wireless device found in a search, the attribute includes one or more of a name, a device type, a device address, and an indication of a supported output device profile; selecting a wireless output device from among a list of wireless devices found in the search and based at least in part on the received attribute; obtaining a security key at

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the information apparatus, the security key enabling wireless data transfer to the selected output device; sending the security key over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer; receiving over the wireless communication channel a response related to an authentication; and if the received response is positive, establishing a wireless connection channel between the information apparatus and the selected wireless output device, conforming, at the information apparatus, at least part of the content into an output data encoded with at least one format, the conforming relating at least in part to the attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering, receiving at the selected output device the output data, performing at the selected output device at least one decoding operations on said output data, and converting the output data into an output engine data acceptable for rendering by an output engine included in the selected output device, as claimed in independent claim 35.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Lexmark v. Flexiworld

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dov Popovici whose telephone number is 571-272-4083. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dov Popovici/
Primary Examiner, Art Unit 2625

Lexmark, Exhibit 1002
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Notice of References Cited	Application/Control No. 10/053,651	Applicant(s)/Patent Under Reexamination CHANG ET AL.	
	Examiner Dov Popovici	Art Unit 2625	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,366,468	04-2008	Yoshida, Shigeo	455/41.3
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	Art Unit
	Dov Popovici	2625

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/30/2008								
	1	-								
	2	-								
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9	31	=								
10	32	=								
11	33	=								
12	34	=								
13	35	=								
14	36	=								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	Art Unit
	Dov Popovici	2625

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/30/2008								
15	37	=								
16	38	=								
17	39	=								
18	40	=								
19	41	=								
20	42	=								
21	43	=								
22	44	=								

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	607166	wireless$5 or (wire adj less$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:38
S2	711982	search$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:38
S3	1053	intermediat$ same image$3 same attribut$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:40
S4	63	S1 and S2 and S3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:41
S5	91162	format$5 same render$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:42
S6	22	S1 and S2 and S3 and S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:43
S7	56156	instal$5 same driver$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:43
S8	14	S1 and S2 and S3 and S5 and S7	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:44
S9	603257	wireless$5 or (wire adj less$5) same (channel$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:55

S10	14	S1 and S2 and S3 and S5 and S7 and S9	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 12:55
S11	16536	search$5 same (wireless$5 or (wire adj less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:01
S12	422	(search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:02
S13	385	(search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:05
S14	162	(search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3)) and (intermediat$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:06
S15	106	(search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3)) and (intermediat$5) and (render$5 or raster$5 or rip$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:08
S16	2663701	wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:12
S17	1384359	(render$5 or raster$5 or rip$3 or rasterization$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:13
S18	382105	S16 and S17	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:13
S19	53739	S16 and S17 and S2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:13

S20	1327	S16 and S17 and S2 and S7	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:14
S21	168	(search$5 same (S16 or wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3)) and (intermediat$5) and (S17 or render$5 or raster$5 or rip$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 13:15
S22	168	(search$5 same (S16 or wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3)) and (intermediat$5) and (S17 or render$5 or raster$5 or rip$3) and (intermediat$)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:07
S23	6593694	raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:09
S24	1311478	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S17) and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:10
S25	166824	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S17) and S16 and S2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:10
S26	24127	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S17) and S16 and ((search$5 same (S16 or wireless$5 or (wire adj less$5))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:12
S27	555	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S17) and S16 and ((search$5 same (S16 or wireless$5 or (wire adj less$5)))) and (instal$5 same driver$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:12
S28	170153	(wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar$5) with (channel$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:14
S29	232	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S17) and S16 and ((search$5 same (S16 or wireless$5 or (wire adj less$5)))) and (instal$5 same driver$5) and ((wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar $5) with (channel$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:15

S30	121	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S17) and S16 and ((search$5 same (S16 or wireless$5 or (wire adj less$5)))) and (instal$5 same driver$5) and ((wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar$5) with (channel$3)) and (intermediat$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 14:16
S31	30162	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.9,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/26 16:40
S32	4047	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/26 16:42
S33	5236	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/26 16:42
S34	3155	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/26 16:43
S35	42139	S31 or S32 or S33 or S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:43
S36	607166	wireless$5 or (wire adj less$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:44
S37	711982	search$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:44
S38	1779	S35 and (S36 and S37)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:44
S39	1053	intermediat$ same image$3 same attribut$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:44

S40	104	S35 and (S39)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:44
S41	63	S36 and S37 and S39	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:45
S42	10	S35 and (S41)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:45
S43	91162	format$5 same render$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:45
S44	1770	S35 and S43	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:45
S45	22	S36 and S37 and S39 and S43	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:45
S46	10	S35 and S45	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:45
S47	56156	instal$5 same driver$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:46
S48	2198	S35 and S47	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:46
S49	14	S36 and S37 and S39 and S43 and S47	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:46

S50	10	S35 and S49	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:46
S51	89731	(wireless$5 or (wire adj less$5)) same (channel$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:47
S52	916	S35 and ((wireless$5 or (wire adj less$5)) same (channel$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:47
S53	603257	wireless$5 or (wire adj less$5) same (channel$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:59
S54	14	S36 and S37 and S39 and S43 and S47 and S53	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:59
S55	10	S35 and S54	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 16:59
S56	16536	search$5 same (wireless$5 or (wire adj less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:00
S57	232	S35 and S56	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:00
S58	422	(search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:00
S59	24	S35 and S58	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:00

S60	385	(search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:00
S61	24	S35 and S60	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:00
S62	162	(search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3)) and (intermediat$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:01
S63	16	S35 and S62	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:01
S64	106	(search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3)) and (intermediat$5) and (render$5 or raster$5 or rip$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:02
S65	14	S35 and S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:02
S66	2663701	wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:08
S67	1384359	(render$5 or raster$5 or rip$3 or rasterization$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:08
S68	382105	S66 and S67	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:08
S69	3097	S35 and S68	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:08

S70	53739	S66 and S67 and S37	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:08
S71	969	S35 and S70	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:08
S72	1327	S66 and S67 and S37 and S47	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:08
S73	137	S35 and S72	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:08
S74	168	(search$5 same (S66 or wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3)) and (intermediat$5) and (S67 or render$5 or raster$5 or rip$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:09
S75	15	S35 and S74	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 17:09
S76	2663701	wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:46
S77	1384359	(render$5 or raster$5 or rip$3 or rasterization$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:46
S78	168	(search$5 same (S76 or wireless$5 or (wire adj less$5))) and (instal$5 same driver$5) and ((print$5 or output$3 or (image adj (output$3 or form$3 or develop$3)) or facsimil$3 or ifax$3 or fax$3 or copier$3 or copy$3)) and (intermediat$5) and (S77 or render$5 or raster$5 or rip$3) and (intermediat$)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:46
S79	30162	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.9,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/26 18:46

S80	4047	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/26 18:46
S81	5236	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/26 18:46
S82	3155	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/26 18:46
S83	42139	S79 or S80 or S81 or S82	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:46
S84	15	S83 and S78	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:46
S85	711982	search$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:51
S86	166824	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S77) and S76 and S85	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:51
S87	1934	S83 and S86	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:51
S88	24127	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S77) and S76 and ((search$5 same (S76 or wireless$5 or (wire adj less$5))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:51
S89	264	S83 and S88	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:51

S90	555	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S77) and S76 and ((search$5 same (S76 or wireless$5 or (wire adj less$5)))) and (instal$5 same driver$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:52
S91	28	S83 and S90	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:52
S92	170153	(wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar$5) with (channel$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:53
S93	1395	S83 and S92	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:53
S94	232	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S77) and S76 and ((search$5 same (S76 or wireless$5 or (wire adj less$5)))) and (instal$5 same driver$5) and ((wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar $5) with (channel$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:53
S95	16	S83 and S94	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:53
S96	121	(raster$5 or rasterization$3 or scal$3 or interpolat$3 or decod$3 or encod$3 or filter$3 or compress$3 or S77) and S76 and ((search$5 same (S76 or wireless$5 or (wire adj less$5)))) and (instal$5 same driver$5) and ((wireless$5 or (wire adj less$5) or rf or ir or radio or infrared or radio$3 or infrar $5) with (channel$3)) and (intermediat$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:54
S97	13	S83 and S96	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:54
S98	105970	(wireless$5 or (wire adj less$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:56
S99	67991	(search$5).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:56

S100	4692	S98 and S99	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:56
S101	1972	(search$5 same (wireless$5 or (wire adj less$5))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:57
S102	7	((search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:58
S103	1	((search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$3) and (channel$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 18:59
S104	12	((search$5 and (wireless$5 or (wire adj less$5))) and (instal$5 and driver$3) and (channel$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:00
S105	4	((search$5 and (wireless$5 or (wire adj less$5))) and (instal$5 and driver$3) and (channel$5) and (intermediat$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:00
S106	0	((search$5 and (wireless$5 or (wire adj less$5))) and (instal$5 and driver$3) and (channel$5) and (intermediat$5) and (render$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:01
S107	898	((search$5 and (wireless$5 or (wire adj less$5))) and (output$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:01
S108	158	((search$5 same (wireless$5 or (wire adj less$5))) same (output$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:02
S109	0	((search$5 same (wireless$5 or (wire adj less$5))) same (output$3) and (instal$5 same driver$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:02

S110	15	((search$5 and (wireless$5 or (wire adj less$5))) and (output$3) and (instal$5 and driver$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:03
S111	3	((search$5 and (wireless$5 or (wire adj less$5))) and (output$3) and (instal$5 and driver$3) and (intermediat$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:03
S112	0	((search$5 and (wireless$5 or (wire adj less$5))) and (output$3) and (instal$5 and driver$3) and (intermediat$5) and (render$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/26 19:05
S113	30191	(358/1.15,1.14,1.13,1.16,1.17,1.18,1.1,1.6,1.9,1.2,1.5,1.9,1.11,400,401,407,468,434,435,436,437,438,439).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/27 15:31
S114	4049	(347/2,3,5,14,23).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/27 15:31
S115	5236	(399/1,8).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/27 15:31
S116	3156	(455/3.01,557,151.2).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/27 15:31
S117	42171	S113 or S114 or S115 or S116	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:31
S118	1978	(search$5 same (wireless$5 or (wire adj less$5))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:31
S119	36	S117 and S118	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:31

S120	7	((search$5 same (wireless$5 or (wire adj less$5))) and (instal$5 same driver$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:32
S121	0	S117 and S120	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:32
S122	12	((search$5 and (wireless$5 or (wire adj less$5))) and (instal$5 and driver$3) and (channel$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:32
S123	0	S117 and S122	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:32
S124	4	((search$5 and (wireless$5 or (wire adj less$5))) and (instal$5 and driver$3) and (channel$5) and (intermediat$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:32
S125	0	S117 and S124	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:32
S126	901	((search$5 and (wireless$5 or (wire adj less$5))) and (output$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:33
S127	23	S117 and S126	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:33
S128	159	((search$5 same (wireless$5 or (wire adj less$5))) same (output$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:33
S129	5	S117 and S128	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:33

S130	15	((search$5 and (wireless$5 or (wire adj less$5))) and (output$3) and (instal$5 and driver$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:33
S131	0	S117 and S130	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:33
S132	3	((search$5 and (wireless$5 or (wire adj less$5))) and (output$3) and (instal$5 and driver$3) and (intermediat$5)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:33
S133	0	S117 and S132	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:33
S134	109	(William$3 near9 Chang$3).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:36
S135	36	(Christina$3 near9 Liu$3).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:37
S136	119	S134 or S135	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:37
S137	35	S136 and (wireless$5 or (wire adj less$5))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:38
S138	29	S136 and (wireless$5 or (wire adj less$5)) and (driver$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:39
S139	24	S136 and (wireless$5 or (wire adj less$5)) and (driver$5) and (intermediat$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:39

S140	23	S136 and (wireless$5 or (wire adj less$5)) and (driver$5) and (intermediat$5) and (search$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:40
S141	23	S136 and (wireless$5 or (wire adj less$5)) and (driver$5) and (intermediat$5) and (search$5) and (attribut$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:41
S142	28	S136 and (((wireless$5 or (wire adj less$5))).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:41
S143	6	S136 and (((wireless$5 or (wire adj less$5)) and (driver$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:42
S144	0	S136 and (((wireless$5 or (wire adj less$5)) and (driver$5) and (intermediat$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:43
S145	0	S136 and (((wireless$5 or (wire adj less$5)) and (driver$5) and (intermediat$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:44
S146	2	S136 and (((wireless$5 or (wire adj less$5)) and (driver$5) and (search$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:44
S147	1	S136 and (((wireless$5 or (wire adj less$5)) and (driver$5) and (search$5) and (attribut$5)).clm.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/27 15:45

11/28/2008 8:15:11 AM
H:\Workspaces\10053651.11262008.1.wsp

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	**Art Unit**
	Dov Popovici	2625

ORIGINAL		INTERNATIONAL CLASSIFICATION									
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED				
358	1.15	G	0	6	F	3 / 12 (2006.0)	G	0	6	F	15 / 00 ()

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
358	1.13	1.14			

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17	11	33										
	2		18	12	34										
	3		19	13	35										
	4		20	14	36										
	5		21	15	37										
	6		22	16	38										
	7	1	23	17	39										
	8	2	24	18	40										
	9	3	25	19	41										
	10	4	26	20	42										
	11	5	27	21	43										
	12	6	28	22	44										
	13	7	29												
	14	8	30												
	15	9	31												
	16	10	32												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	22	
/Dov Popovici/ Primary Examiner, Art Unit 2625	11/30/2008	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	11

U.S. Patent and Trademark Office

Part of Paper No. 20081126

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10053651	CHANG ET AL.
	Examiner	Art Unit
	Dov Popovici	2625

SEARCHED

Class	Subclass	Date	Examiner
358	1.15, 1.14, 1.13, 1.16, 1.17, 1.18, 1.1, 1.6, 1.9, 1.2, 1.5, 1.11, 400, 401, 407, 468, 434, 435, 436, 437, 438, 439	11/26/2008	D.P.
347	2, 3, 5, 14, 23	11/26/2008	D.P.
399	1, 8	11/26/2008	D.P.
455	3.01, 557, 151.2	11/26/2008	D.P.

SEARCH NOTES

Search Notes	Date	Examiner
East Search - See attached East Search History - (S1 to S147) - text search with the search area listed above, text search in the US-PGPUB database and within the claims and with the search area listed below (Interference Search), and Inventor Name Search.	11/26/2008 and 11/27/2008	D.P.

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner
358	1.15, 1.14, 1.13, 1.16, 1.17, 1.18, 1.1, 1.6, 1.9, 1.2, 1.5, 1.11, 400, 401, 407, 468, 434, 435, 436, 437, 438, 439	11/27/2008	D.P.
347	2, 3, 5, 14, 23	11/27/2008	D.P.
399	1, 8	11/27/2008	D.P.
455	3.01, 557, 151.2	11/27/2008	D.P.

	/Dov Popovici/ Primary Examiner, Art Unit 2625

Serial Number	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Dov Popovici	2625	

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CONFIRMATION NO. 4711

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/053,651	01/18/2002	707	2625	

APPLICANTS

William Ho Chang, Vancouver, WA;
Christina Ying Liu, Vancouver, WA;

**** CONTINUING DATA ***************************

This appln claims benefit of 60/262,764 01/19/2001

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **

03/19/2002

Foreign Priority claimed	❑ Yes ☑ No	❑ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	❑ Yes ☑ No					
Verified and Acknowledged	/DOV POPOVICI/ Examiner's Signature	Initials	WA	14	22	3

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UNITED STATES

TITLE

Methods for universal data output

FILING FEE RECEIVED		
456	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

BIB (Rev. 05/07).

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Chang
Application Number: 10/053,651
Confirmation No.: 4711
Filing Date: January 18, 2002
Title: Methods for Universal Data Output

Examiner: Popovici, Dov
Art Unit: 2651

AMENDMENT

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Please amend the application as follows according to a proposed Examiner's amendment discussed with the Examiner by telephone November 28, 2008.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

In the Specification:

Please amend the abstract, page 66, as set forth in the following replacement paragraph:

A data output method for rendering at an output device content accessible with an information apparatus, includes obtaining at the information apparatus one or more rasterization parameters corresponding to the output device and conforming at the information apparatus at least part of the data content into one or more output images with ~~said~~ one or more rasterization parameters. An intermediate output data is transmitted from the information apparatus to an output controller that is distinct from the information apparatus and associated with the selected output device, the intermediate output data including ~~said~~ one or more output image. The intermediate output data is converted at the output controller into an output data acceptable for rendering at the output device.

In the claims:

All claims in the application are indicated below.

1-22 (canceled)

23. (currently amended) A pervasive mobile data output method for rendering at an output device content at least partly accessible with an information apparatus, the information apparatus includes at least one wireless communication unit, the pervasive mobile output method comprising:

accessing at the information apparatus at least part of said content;

opening at the information apparatus a wireless communication channel;

searching wirelessly at the information apparatus for wireless output devices available for wireless communication;

receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search;

selecting at the information apparatus a wireless output device found in the search based at least in part on ~~the~~ a received ~~attributes~~ attribute;

conforming at the information apparatus at least part of the content into one or more output images;

generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforms at least partly based on ~~the~~ said received attribute of the selected output device;

establishing a wireless connection between the information apparatus and the selected wireless output device;

transmitting the intermediate output data from the information apparatus to an output controller that is distinct from the information apparatus and associated with the selected output device, the output controller includes at least one wireless communication unit;

converting at the output controller, the intermediate output data into an output data acceptable for rendering at the output device, and delivering the output data to the output device for rendering;

conforming at the output device the output data into a data format that is acceptable for rendering by ~~the~~ a rendering engine in the output device, and delivering the data format to the rendering engine for output,

whereby, the ~~wireless~~ information apparatus is able to output, in a mobile pervasive manner, one or more images representative of said content to an output device without the need to install an output device driver specific to that output device.

24. (currently amended) The method of claim 23 in which establishing a wireless connection with the selected wireless output device comprises authenticating wireless access to the output device by sending over the wireless communication channel one or more of a name, a password or security code, an ID number or address, a signatures, a physical or digital security key ~~keys (physical or digital)~~, biometrics, a fingerprints, and a voice.

25. (previously presented) The method of claim 23 in which the receiving at least one attribute over the wireless communication channel comprises receiving one or more of a device name, a device type, an address or ID number, an indication of a supported device profile, a device profile, and a security code.

26. (currently amended) The method ~~as~~ of claim 23 further comprising obtaining at the information apparatus one or more rasterization parameters corresponding to the output device and related at least in part to the received ~~device~~ attribute from the output device or from user input.

27. (previously presented) The method of claim 23 in which the conforming at the information apparatus at least part of the content into one or more output images includes one or more of a rasterization operation, a scaling operation, an interpolation operation, a decoding operation, an encoding operation, a filtering operation and a compression operation.

28. (previously presented) The method of claim 23 in which the content includes one or more of a text, a graphics element data, a video data, an audio data, and an image data.

29. (previously presented) The method of claim 23 in which the output controller is included in the output device.

30. (previously presented) The method of claim 23 further comprising performing at the output controller one or more processing operations on the one or more output images included in the intermediate output data, the one or more processing operations including one or more of a color correction operation, a color matching operation, a color management operation, a scaling operation, an interpolation operation, a color space conversion, a compression operation, an audio processing and a halftoning operation.

31. (currently amended) A pervasive mobile data output method for rendering content to an output device from a mobile wireless information apparatus, the content at least partly accessible with the information apparatus, the output device being a distinct device from the information apparatus and includes a wireless communication unit, the method comprising:

opening a wireless communication channel at the information apparatus;

searching wirelessly at the information apparatus for wireless output devices available for wireless communication;

receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output ~~device;~~ device, the attribute ~~include~~ including at least an indication of ~~the~~ a supported output device profile;

selecting a wireless output device found in the search based at least in part on the received device attribute;

conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard parameters;

generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforms

at least partly to ~~the~~ said supported output device profile of ~~the~~ a selected output that is included in ~~the~~ said attribute of the selected output device and received over the wireless communication channel;

establishing a point to point wireless connection between the information apparatus and the selected output device;

delivering the intermediate output data over the wireless connection for rendering at the selected wireless output device;

decoding at the output device the intermediate output data;

converting at said output device the intermediate output data into an output data format acceptable for rendering by an output engine included in said ~~the~~ output device, and

sending the output data to the output engine for rendering, whereby the wireless information apparatus is able to pervasively output one or more images representative of said content to an output device without need to install an output device driver specific to that output device.

32. (currently amended) The method of claim 31 in which establishing a wireless connection with the selected wireless output device comprises authenticating wireless access to the output device by sending over the wireless communication channel one or more of a name, a password or security code, an ID number or address, a signatures, a physical or digital security ~~keys (physical or digital)~~ key, biometrics, a fingerprints, and a voice.

33. (previously presented) The method of claim 31 in which the receiving at least one attribute over the wireless communication channel comprises receiving one or more of a device name, a device type, an address or ID number, an indication of a supported device profile, a device profile, and a security code.

34. (currently amended) The method of claim 31 in which the intermediate output data conforms at least partly to ~~the~~ said at least one device ~~attributes~~ attribute received over the communication channel and relating to the selected output device.

35. (currently amended) A method of mobile wireless data output from an information apparatus with access to at least part of ~~the~~ a content to a wireless output device by short range wireless communication, wherein the information apparatus includes at least one wireless communication unit and being a distinct device from the output device, the method comprising:

opening a wireless communication channel;

discovering wirelessly wireless device that is available for wireless connection;

receiving over the wireless communication channel an attribute corresponding to each wireless device found in ~~the~~ a search, the attribute includes one or more of a name, a device type, a device address, and an indication of ~~the~~ a supported output device profile;

selecting a wireless output device from among a list of wireless devices found in the search and based at least in part on the received ~~attributes~~ attribute;

obtaining a security key at the information apparatus, the security key enabling wireless data transfer to the selected output device;

sending the security code over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer;

receiving over the wireless communication channel a response related to ~~the~~ an authentication; and

if the received response is positive,

establishing a wireless connection channel between the information apparatus and the selected wireless output device,

conforming, at the information apparatus, at least part of the content into an output data encoded with at least one format, the conforming relating at least in part to the ~~said~~ attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering,

receiving at the selected output device the output data,

performing at the selected output device at least one decoding operations on said output data, and converting the output data into an output engine data acceptable for rendering by ~~the~~ an output engine included in the selected output device.

36. (previously presented) The method according to claim 35 in which the information apparatus is one of a mobile phone, a digital camera, a laptop, and a PDA.

37. (previously presented) The method according to claim 35 in which the output device is one of a printer, a projection, a copier, a speaker, an audio output device, a display screen, and a TV.

38. (currently amended) The method of claim 35 in which discovering the one or more output devices includes one or more output devices posting their availability as discoverable and the information apparatus finding ~~the~~ one or more output devices.

39. (previously presented) The method of claim 35 further comprising:

obtaining a payment information at the information apparatus, the payment information enabling data rendering service by the selected output device;

sending the payment information over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for enabling data rendering service.

40. (currently amended) The method of claim 35 in which the conforming, at the information apparatus, related at least in part to the supported output device profile of the selected output device and included in ~~the~~ said ~~attributes~~ attribute received over the wireless communication channel.

41. (currently amended) The method of claim 35 in which said security key ~~compromises~~ comprises at least one of a user name, password, ID number, signatures, physical or digital security keys ~~(physical or digital)~~, biometrics, fingerprints, and a voice.

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42. (currently amended) The method of claim 35 in which the step of obtaining ~~the~~ said security key comprises inputting by ~~the~~ a user or retrieving a key that was previously stored in the information apparatus.

43. (currently amended) The method of claim 35 further comprising:

receiving at the output device and over the wireless communication channel established a security key for authentication;

comparing the received security key with an access control list stored in the output device or input by ~~the~~ a user; and

if the step of comparing the received security key with an access control list is successful, granting the ~~wireless~~ information apparatus a secured wireless connection channel access to the output device.

44. (currently amended) The method of claim 35 in which the step of obtaining ~~the~~ said security key comprises inputting by ~~the~~ a user and the method further comprises:

receiving at the information apparatus and over the wireless communication channel established with the wireless output device a security key for authentication;

comparing the received security key with the security key input by the user; and

if the step of comparing the received security key is successful, granting the wireless output device a secured wireless communication connection to the information apparatus, thereby enabling a two way authentication and verification for a secured ~~bi^^directional~~ bi-directional wireless communication.

Remarks

Claims 23-44 are in the application. Claims 23, 31, and 35 are in independent form. Reconsideration is requested.

Applicant has amended the application as suggested by the Examiner in a November 28, 2008 telephone conference. In addition, applicant has amended claim 31 to change "include" to "including" to correct a typographical error. Applicant believes the application is in condition for allowance and respectfully requests the same.

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PORTLAND, OREGON 97201
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Respectfully Submitted,

/Mark M. Meininger/

Mark M. Meininger
Registration No. 32,428

Electronic Acknowledgement Receipt

EFS ID:	4367867
Application Number:	10053651
International Application Number:	
Confirmation Number:	4711
Title of Invention:	Methods for universal data output
First Named Inventor/Applicant Name:	William Ho Chang
Correspondence Address:	MR. WILLIAM H. CHANG FLEXIWORLD TECHNOLOGIES, INC. PMB 267 3439 N.E. SANDY BLVD. PORTLAND OR 97232-1959 US - -
Filer:	Mark Meininger
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	28-NOV-2008
Filing Date:	18-JAN-2002
Time Stamp:	19:25:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

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Lexmark v. Flexiworld

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Preliminary Amendment	10053651Amend.pdf	88935 1a39ccf408040bc44515ad9e89f63f71684c013f	no	10

Warnings:	
Information:	
Total Files Size (in bytes):	88935

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND OR 97232-1959

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AUG 31 2007

OFFICE OF PETITIONS

In re Application of :
Chang et al. :
Application No. 10/053,651 : DECISION ON PETITION
Filed: January 18, 2002 :
Title. Methods For Universal Data Output :

This is a decision on the petition, filed July 30, 2007 which is being treated as a petition under 37 CFR 1.181, requesting withdrawal of the holding of abandonment in the above-identified application.

The petition is **GRANTED**.

This application was held abandoned for failure to timely respond to the Office action of August 23, 2006, which set a three (3) month shortened statutory period for reply. Accordingly, a reply was due on or before November 23, 2007.

Petitioner states that a timely reply was submitted via Electronic Filing System (EFS) on January 23, 2007, which included the following papers: amendment, claims, specification and a two month extension of time. The correspondence includes an electronic acknowledgement receipt dated January 23, 2007.

A review of the record shows the originally submitted papers dated January 23, 2007 have been located in the file.

Accordingly, the holding of abandonment for failure to timely file a reply to the Office action of August 23, 2006 is hereby withdrawn and the application restored to pending status.

This application is being referred to art unit 2625 for appropriate action in the normal course of business.

Telephone inquiries concerning this matter should be directed to the undersigned at (571) 272-3215.

Charlema R. Grant

Charlema R. Grant
Petitions Attorney
Office of Petitions

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Lexmark v. Flexiworld

OIPE
JUL 30 2007
PATENT & TRADEMARK OFFICE

8-1-07

JTW

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William Ho CHANG et al

Application No: 10/053,651

Filed: January 18, 2002

For:METHOD FOR UNIVERSAL DATA OUTPUT

Confirmation No: 4711

Art Unit: 2625

Examiner: Scott A. Schlack

PETITION FOR TO WITHDRAW HOLDING OF ABANDONMENT

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Applicant hereby petitions to withdraw the holding of abandonment mailed January 18, 2007 and to restore this application to pending status. This petition is signed by all inventions and Flexiworld Technologies Inc.

An Office Action was mailed on August 23, 2006, having a shortened statutory period for response of three months, expiring November 23, 2006, and a final period for response expiring February 23, 2006.

The notice of abandonment was mailed on January 18, 2007, i.e. before the final period for reply had expired, and refers to a document that was filed October 10, 2006 as a purported reply to the action and asserts that the document was not a proper reply. The document that was filed on October 10, 2006 was not presented as a reply to the action but was a petition by applicant's attorney to withdraw from representation. In any

event, having been mailed before the final period for reply had expired the notice of abandonment was premature.

The PAIR record for this application shows that a reply to the Office Action was filed on January 23, 2007 with a petition for two months' extension of time and payment of the extension fee of $225. See the accompanying copy of the PAIR record accessed on May 12, 2007. Accordingly, the reply was timely. Even if the reply filed January 23, 2007 was deficient in some fashion, it is clearly a bona fide attempt at a proper reply.

In the circumstances, applicant submits that the notice of abandonment was improper and should be withdrawn and that this application should be restored to pending status. Since the reply was received in the Office, no copy is attached.

Respectfully submitted,

William Chang

William Ho Chang
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. Sandy Boulevard
Portland, Oregon 97232

William Chang

William Ho Chang, Inventor

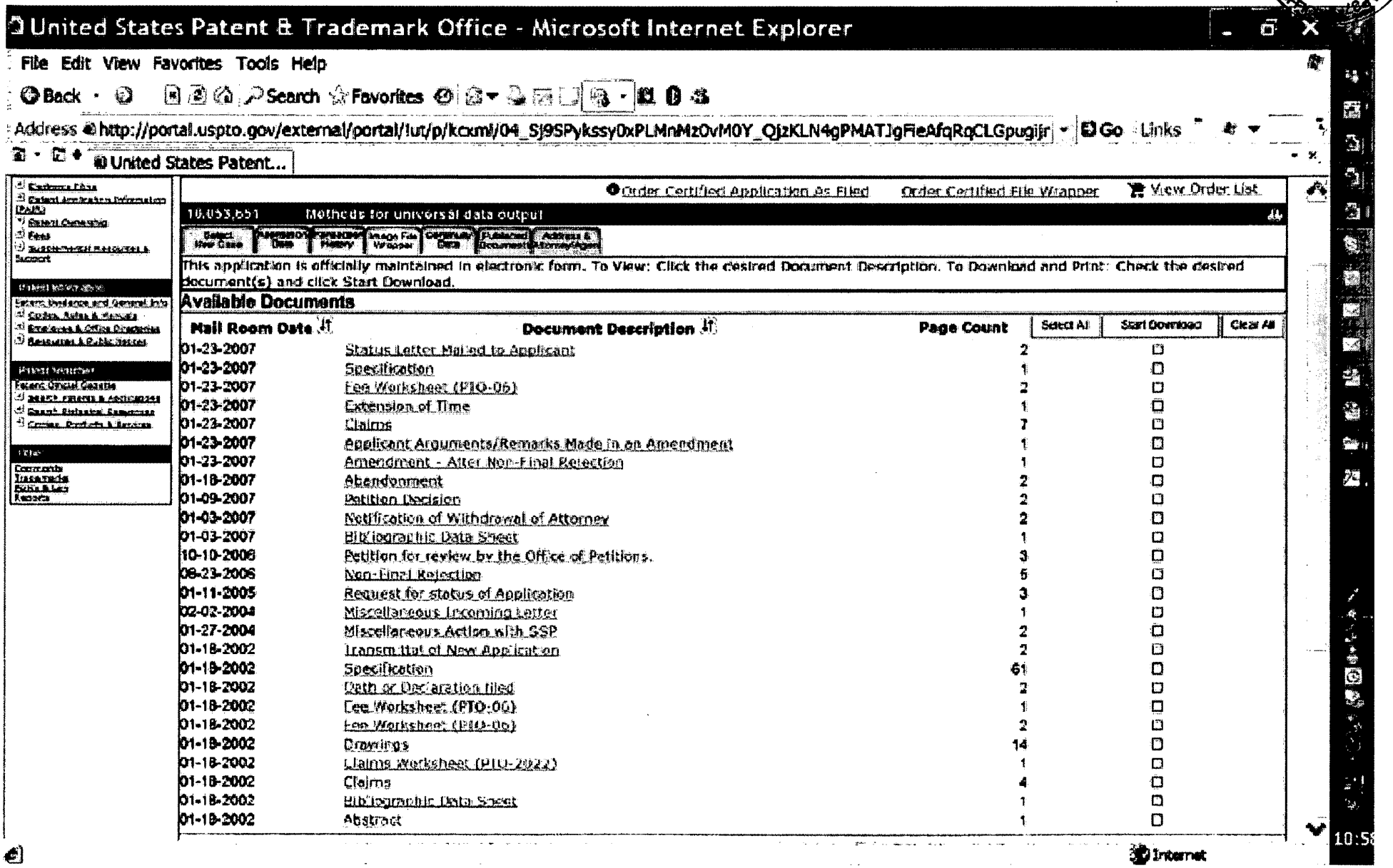
Christina Ying Liu, Inventor

Application no: 10/053,651
Express Mail No: EQ574640588US
Deposit Date: July 30, 2007

Inventor: William Ho Chang
3439 N.E. Sandy Boulevard #267
Portland OR 97232
(503)381-7056

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MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
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PORTLAND OR 97232-1959

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JUN 11 2007

OFFICE OF PETITIONS

In re Application of :
Chang et al :
Application No. 10/053,651 : ON PETITION
Filed: January 18, 2002 :
Title: Methods for Universal Data Output :

This is a decision on the petition under 37 CFR 1.181 to withdraw the holding of abandonment, filed May 23, 2007.

The petition to withdraw the holding of abandonment is **Dismissed**.

Any request for reconsideration should be filed within **TWO MONTHS** of the mailing date of this decision in order to be considered timely. 37 CFR 1.181(f). This time period may not be extended pursuant to 37 CFR 1.136.

This above-identified application became abandoned for failure to timely file a reply to the non-final Office Action of August 23, 2006. The non-final Office Action set a three (3) month shortened statutory period for reply. No extensions of time were obtained under the provisions of 37 CFR 1.136(a). Accordingly, this application was held abandoned on November 24, 2006. A Notice of Abandonment was mailed November 18, 2007.

The petition has **not** been reviewed on the merits because the petition provided has not been signed.

Pursuant to 37 CFR 1.33, amendments and other papers, except for written assertions pursuant to § 1.27(c)(2)(ii) of this part, filed in the application must be signed by:

(1) A registered attorney or agent of record appointed in compliance with § 1.34(b);

(2) A registered attorney or agent not of record who acts in a representative capacity under the provisions of § 1.34(a);

(3) An assignee as provided for under § 3.71(b) of this chapter; or

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(4) All of the applicants (§ 1.41(b)) for patent, unless there is an assignee of the entire interest and such assignee has taken action in the application in accordance with § 3.71 of this chapter.

A review of the petition submitted shows that the petition was not signed by a proper party of interest. All correspondence concerning this application must be signed by: 1) all named applicants (inventors), 2) all the owners of the rights to the invention, or 3) a registered attorney or agent duly appointed by the inventor(s) or the owner(s). A review of the record shows the petition has not been executed by inventor Liu, nor is there an assignment recorded for Flexiworld Technologies, Inc.

Further correspondence with respect to this matter should be addressed as follows:

By mail:	Mail Stop Petition Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450
By facsimile:	(571) 273-8300
By delivery service: (FedEx, UPS, DHL, etc.)	U.S. Patent and Trademark Office Customer Window, Mail Stop Petition Randolph Building 401 Dulany Street Alexandria, VA 22314

Telephone inquiries concerning this matter should be directed to the undersigned at (571) 272-3215.

Charlema R. Grant

Charlema R. Grant
Petitions Attorney
Office of Petitions

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Lexmark v. Flexiworld

05-25-07 IFW 2625

OIPE IAP2
MAY 23 2007
PATENT & TRADEMARK OFFICE

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William Ho CHANG et al

Application No: 10/053,651

Filed: January 18, 2002

For:METHOD FOR UNIVERSAL DATA OUTPUT

Confirmation No: 4711

Art Unit: 2625

Examiner: Scott A. Schlack

PETITION FOR TO WITHDRAW HOLDING OF ABANDONMENT

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Applicant hereby petitions to withdraw the holding of abandonment mailed January 18, 2007 and to restore this application to pending status.

An Office Action was mailed on August 23, 2006, having a shortened statutory period for response of three months, expiring November 23, 2006, and a final period for response expiring February 23, 2006.

The notice of abandonment was mailed on January 18, 2007, i.e. before the final period for reply had expired, and refers to a document that was filed October 10, 2006 as a purported reply to the action and asserts that the document was not a proper reply. The document that was filed on October 10, 2006 was not presented as a reply to the action but was a petition by applicant's attorney to withdraw from representation. In any event, having been mailed before the final period for reply had

expired the notice of abandonment was premature.

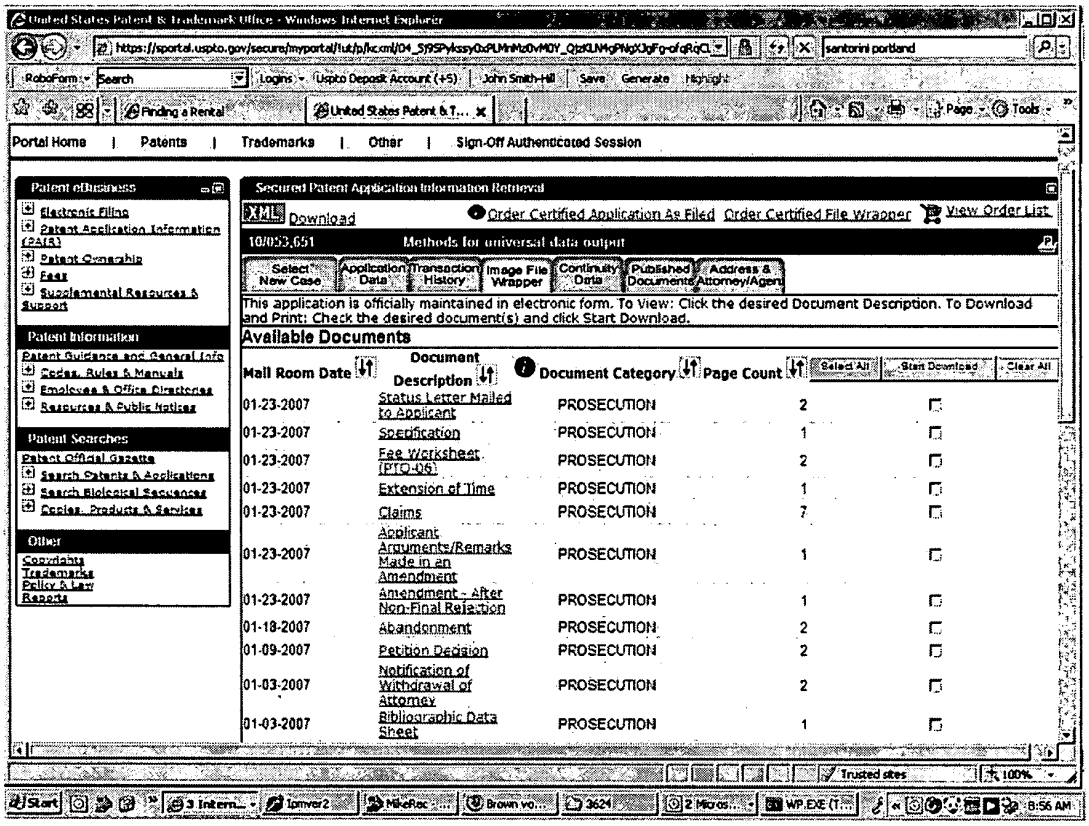
The PAIR record for this application shows that a reply to the Office Action was filed on January 23, 2007 with a petition for two months' extension of time and payment of the extension fee of $225. See the accompanying copy of the PAIR record accessed on May 12, 2007. Accordingly, the reply was timely. Even if the reply filed January 23, 2007 was deficient in some fashion, it is clearly a bona fide attempt at a proper reply.

In the circumstances, applicant submits that the notice of abandonment was improper and should be withdrawn and that this application should be restored to pending status. Since the reply was received in the Office, no copy is attached.

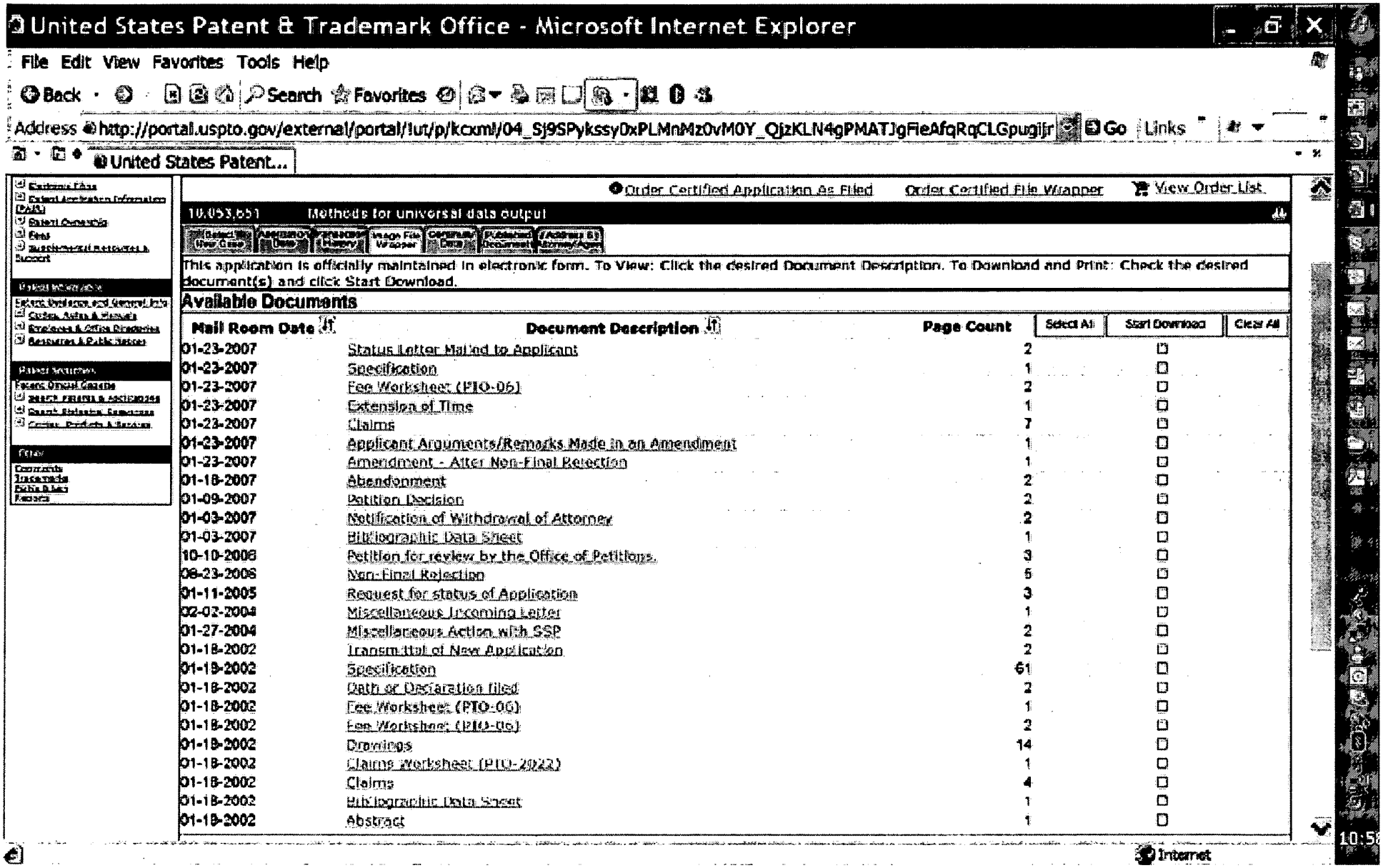
Respectfully submitted,



William H. Chang
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Application No: 10/053,651



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Lexmark v. Flexiworld

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William Ho CHANG et al

Application No: 10/053,651

Filed: January 18, 2002

For: METHOD FOR UNIVERSAL DATA OUTPUT

Confirmation No: 4711

Art Unit: 2625

Examiner: Scott A. Schlack

REPLY TO THE OFFICE ACTION MAILED 08/23/2006

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

This reply is being filed by the undersigned without entering a general appearance on behalf of applicant and without negating in any fashion the previous request to withdraw from representation.

The applicant requests further examination and consideration of this application in view of the following Amendments and Remarks.

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DESCRIPTION AMENDMENTS

Rewrite paragraph [0033] as follows:

[0033] ~~Like~~ Unlike conventional raster image processing methods, this invention provides a more balanced distribution of the raster image processing computational load between the Information apparatus and the output device or the output system. Computational intensive image processing operations such as digital halftoning and color space conversions can be implemented in the output device or output system. Consequently, this new raster image processing method reduces the processing and memory requirements for the information apparatus when compared to conventional data output methods described with reference to Fig 1A in which the entire raster image process is implemented in the information apparatus. Additionally, in this invention, a client application or device driver included in the information apparatus, which performs part of the raster image processing operation, can have a smaller size compared to a conventional output application included in the information apparatus, which performs raster image processing operation.

CLAIM AMENDMENTS

1-22 (canceled)

23. (new) A pervasive mobile data output method for rendering at an output device content at least partly accessible with an information apparatus, the information apparatus includes at least one wireless communication unit, the pervasive mobile output method comprising:

accessing at the information apparatus at least part of said content;

opening at the information apparatus a wireless communication channel;

searching wirelessly at the information apparatus for wireless output devices available for wireless communication;

receiving at the information apparatus and over the wireless communication channel at least one attribute corresponding to each wireless output device found in the search;

selecting at the information apparatus a wireless output device found in the search based at least in part on the received attributes;

conforming at the information apparatus at least part of the content into one or more output images;

generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforms at least partly based on the said received attribute of the selected output device;

establishing a wireless connection between the information apparatus and the selected wireless output device;

transmitting the intermediate output data from the information apparatus to an output controller that is distinct from the information apparatus and associated with the selected output device, the output controller includes at least one wireless communication unit;

converting at the output controller, the intermediate output data into an output data acceptable for rendering at the output device, and delivering the output data to the output device for rendering;

conforming at the output device the output data into a data format that is acceptable for rendering by the rendering engine in the output device, and delivering the data format to the rendering engine for output,

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whereby, the wireless information apparatus is able to output, in a mobile pervasive manner, one or more images representative of said content to an output device without the need to install an output device driver specific to that output device.

24. (new) The method of claim 23 in which establishing a wireless connection with the selected wireless output device comprises authenticating wireless access to the output device by sending over the wireless communication channel one or more of a name, a password or security code, an ID number or address, a signatures, a security keys (physical or digital), biometrics, a fingerprints, and a voice.

25. (new) The method of claim 23 in which the receiving at least one attribute over the wireless communication channel comprises receiving one or more of a device name, a device type, an address or ID number, an indication of a supported device profile, a device profile, and a security code.

26. (new) The method as of claim 23 further comprising obtaining at the information apparatus one or more rasterization parameters corresponding to the output device and related at least in part to the received device attribute from the output device or from user input.

27. (new) The method of claim 23 in which the conforming at the information apparatus at least part of the content into one or more output images includes one or more of a rasterization operation, a scaling operation, an interpolation operation, a decoding operation, an encoding operation, a filtering operation and a compression operation.

28. (new) The method of claim 23 in which the content includes one or more of a text, a graphics element data, a video data, an audio data, and an image data.

29. (new) The method of claim 23 in which the output controller is included in the output device.

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30. (new) The method of claim 23 further comprising performing at the output controller one or more processing operations on the one or more output images included in the intermediate output data, the one or more processing operations including one or more of a color correction operation, a color matching operation, a color management operation, a scaling operation, an interpolation operation, a color space conversion, a compression operation, an audio processing and a halftoning operation.

31. (new) A pervasive mobile data output method for rendering content to an output device from a mobile wireless information apparatus, the content at least partly accessible with the information apparatus, the output device being a distinct device from the information and includes a wireless communication unit, the method comprising:

opening a wireless communication channel at the information apparatus;

searching wirelessly at the information apparatus for wireless output devices available for wireless communication;

receiving over the wireless communication channel at least one device attribute associated with at least one available wireless output device; the attribute include at least an indication of the supported output device profile;

selecting a wireless output device found in the search based at least in part on the received device attribute;

conforming at the information apparatus at least part of the content into one or more device independent output images with at least one predefined or standard parameters;

generating at the information apparatus an intermediate output data that includes said one or more output images, the intermediate output data conforms at least partly to the said supported output device profile of the selected output that is included in the said attribute of the selected output device and received over the wireless communication channel;

establishing a point to point wireless connection between the information apparatus and the selected output device;

delivering the intermediate output data over the wireless connection for rendering at the selected wireless output device;

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decoding at the output device the intermediate output data;

converting at said output device the intermediate output data into an output data format acceptable for rendering by an output engine included in said the output device, and

sending the output data to the output engine for rendering, whereby the wireless information apparatus is able to pervasively output one or more images representative of said content to an output device without need to install an output device driver specific to that output device.

32. (new) The method of claim 31 in which establishing a wireless connection with the selected wireless output device comprises authenticating wireless access to the output device by sending over the wireless communication channel one or more of a name, a password or security code, an ID number or address, a signatures, a security keys (physical or digital), biometrics, a fingerprints, and a voice.

33. (new) The method of claim 31 in which the receiving at least one attribute over the wireless communication channel comprises receiving one or more of a device name, a device type, an address or ID number, an indication of a supported device profile, a device profile, and a security code.

34. (new) The method of claim 31 in which the intermediate output data conforms at least partly to the said at least one device attributes received over the communication channel and relating to the selected output device.

35. (new) A method of mobile wireless data output from an information apparatus with access to at least part of the content to a wireless output device by short range wireless communication, wherein the information apparatus includes at least one wireless communication unit and being a distinct device from the output device, the method comprising:

opening a wireless communication channel;

discovering wirelessly wireless device that is available for wireless connection;

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receiving over the wireless communication channel an attribute corresponding to each wireless device found in the search, the attribute includes one or more of a name, a device type, a device address, and an indication of the supported output device profile;

selecting a wireless output device from among a list of wireless devices found in the search and based at least in part on the received attributes;

obtaining a security key at the information apparatus, the security key enabling wireless data transfer to the selected output device;

sending the security code over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for data transfer;

receiving over the wireless communication channel a response related to the authentication; and

if the received response is positive,

establishing a wireless connection channel between the information apparatus and the selected wireless output device,

conforming, at the information apparatus, at least part of the content into an output data encoded with at least one format, the conforming relating at least in part to the said attribute received over the wireless communication channel, and transferring the output data from the information apparatus to the selected output device over said wireless connection channel for rendering,

receiving at the selected output device the output data,

performing at the selected output device at least one decoding operations on said output data, and converting the output data into an output engine data acceptable for rendering by the output engine included in the selected output device.

36. (new) The method according to claim 35 in which the information apparatus is one of a mobile phone, a digital camera, a laptop, and a PDA.

37. (new) The method according to claim 35 in which the output device is one of a printer, a projection, a copier, a speaker, an audio output device, a display screen, and a TV.

38. (new) The method of claim 35 in which discovering the one or more output devices includes one or more output devices posting their availability as discoverable and the information apparatus finding the one or more output devices.

39. (new) The method of claim 35 further comprising:

obtaining a payment information at the information apparatus, the payment information enabling data rendering service by the selected output device;

sending the payment information over the wireless communication channel and requesting the selected wireless output device to open a wireless connection channel for enabling data rendering service.

40. (new) The method of claim 35 in which the conforming, at the information apparatus, related at least in part to the supported output device profile of the selected output device and included in the said attributes received over the wireless communication channel.

41. (new) The method of claim 35 in which said security key compromises at least one of a user name, password, ID number, signatures, security keys (physical or digital), biometrics, fingerprints, and a voice.

42. (new) The method of claim 35 in which the step of obtaining the said security key comprises inputting by the user or retrieving a key that was previously stored in the information apparatus.

43. (new) The method of claim 35 further comprising:

receiving at the output device and over the wireless communication channel established a security key for authentication;

comparing the received security key with an access control list stored in the output device or input by the user; and

if the step of comparing the received security key with an access control list is successful, granting the wireless information apparatus a secured wireless connection channel access to the output device.

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44. (new) The method of claim 35 in which the step of obtaining the said security key comprises inputting by the user and the method further comprises:

receiving at the information apparatus and over the wireless communication channel established with the wireless output device a security key for authentication;

comparing the received security key with the security key input by the user; and

if the step of comparing the received security key is successful, granting the wireless output device a secured wireless communication connection to the information apparatus, thereby enabling a two way authentication and verification for a secured bi^^directional wireless communication.

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Lexmark v. Flexiworld

REMARKS

In response to the examiner's requirement for election of species, applicant elects the examiner's Species B (discovery). All claims now of record are restricted to methods that involve discovery of a wireless output device.

Applicant reserves the right to file one or more divisional applications directed to non-elected subject matter.

Respectfully submitted,

/John Smith-Hill/
John Smith-Hill
Reg. No. 27,730

SMITH-HILL & BEDELL, P.C.
16100 N.W. Cornell Road, Suite 220
Beaverton, Oregon 97006

Tel. (503) 574-3100
Fax (503) 574-3197
Docket: FLEX 2406

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William Ho CHANG et al

Application No: 10/053,651

Filed: January 18, 2002

For: METHOD FOR UNIVERSAL DATA OUTPUT

Confirmation No: 4711

Art Unit: 2625

Examiner: Scott A. Schlack

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Applicant hereby petitions for two months' extension of time, i.e. until January 23, 2007, for reply to the Office Action dated August 23, 2006, under 37 CFR 1.136(a). Please charge $225 for the fee under 37 CFR 1.17(a)(2) to Deposit Account 19-2560.

Respectfully submitted,

/John Smith-Hill/
John Smith-Hill
Reg. No. 27,730

SMITH-HILL & BEDELL, P.C.
16100 N.W. Cornell Road, Suite 220
Beaverton, Oregon 97006

Tel. (503) 574-3100
Fax (503) 574-3197
Docket: FLEX 2406

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Electronic Patent Application Fee Transmittal

Application Number:	10053651
Filing Date:	18-Jan-2002
Title of Invention:	Methods for universal data output
First Named Inventor/Applicant Name:	William Ho Chang
Filer:	John Smith-Hill
Attorney Docket Number:	
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 2 months with $0 paid	2252	1	225	225

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**225**

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Electronic Acknowledgement Receipt

EFS ID:	1458297
Application Number:	10053651
International Application Number:	
Confirmation Number:	4711
Title of Invention:	Methods for universal data output
First Named Inventor/Applicant Name:	William Ho Chang
Correspondence Address:	MR. WILLIAM H. CHANG FLEXIWORLD TECHNOLOGIES, INC. PMB 267 3439 N.E. SANDY BLVD. PORTLAND OR 97232-1959 US - -
Filer:	John Smith-Hill
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	23-JAN-2007
Filing Date:	18-JAN-2002
Time Stamp:	14:07:13
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$225
RAM confirmation Number	1814

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Deposit Account	192560
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 and 1.17	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1		2406_1.pdf	392111	yes	10

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment - After Non-Final Rejection	1	1
Specification	2	2
Claims	3	9
Applicant Arguments/Remarks Made in an Amendment	10	10

Warnings:

Information:

2	Extension of Time	2406_ext.pdf	25456	no	1

Warnings:

Information:

3	Fee Worksheet (PTO-06)	fee-info.pdf	8111	no	2

Warnings:

Information:

Total Files Size (in bytes):	425678

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang		4711

7590 01/18/2007

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR 97232-1959

EXAMINER	
SCHLACK, SCOTT A	

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
01/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

PTOL-90A (Rev. 10/06)

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Notice of Abandonment	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Scott A. Schlack	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on *23 August 2006*.
   (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
   (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection.
   (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
   (c) ☒ A reply was received on *10/10/2006* but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
   (d) ☐ No reply has been received.

2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
   (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
   (b) ☐ The submitted fee of $_____ is insufficient. A balance of $_____ is due.
   The issue fee required by 37 CFR 1.18 is $_____. The publication fee, if required by 37 CFR 1.18(d), is $_____.
   (c) ☐ The issue fee and publication fee, if applicable, has not been received.

3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
   (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
   (b) ☐ No corrected drawings have been received.

4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.

5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.

6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. ☒ The reason(s) below:

The attorney of record has been withdrawn and there is currently no attorney of record.

AUNG MOE
PRIMARY EXAMINER

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

SMITH-HILL AND BEDELL, P.C.
16100 NW CORNELL ROAD, SUITE 220
BEAVERTON OR 97006

COPY MAILED

JAN 0 9 2007

OFFICE OF PETITIONS

In re Application of	:	
William H. Chang, et al.	:	
Application No. 10/053,651	:	DECISION ON PETITION
Filed: January 18, 2002	:	TO WITHDRAW
Attorney Docket No. FLEX2406	:	FROM RECORD
	:	

This is a decision on the Request to Withdraw as attorney or agent of record under 37 C.F.R. § 1.36(b), filed October 10, 2006.

The request is **APPROVED**.

A grantable request to withdraw as attorney/agent of record must be signed by every attorney/agent seeking to withdraw or contain a clear indication that one attorney is signing on behalf of another/others. A request to withdraw will not be approved unless at least 30 (thirty) days would remain between the date of approval and the later of the expiration date of a time to file a response or the expiration date of the maximum time period which can be extended under 37 C.F.R. § 1.136(a).

The request was signed by John Smith-Hill on behalf of all attorneys of record who are associated with customer No. 07812.

All attorneys/agents associated with the Customer Number 07812 have been withdrawn.

Applicant is reminded that there is no attorney of record at this time.

All future correspondence will be directed to the first named inventor William H. Chang at the address indicated below.

There is an outstanding Office action mailed August 23, 2006 that requires a reply from the applicant.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Telephone inquiries concerning this decision should be directed to undersigned at 571-272-1642.

April M. Wise
Petitions Examiner
Office of Petitions

cc: MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.F. SANDY BLVD
PORTLAND, OR 97232-1959

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/053,651	01/18/2002	William Ho Chang	FLEX 2406

CONFIRMATION NO. 4711

OC000000021809653

OC000000021809653

7812
SMITH-HILL AND BEDELL, P.C.
16100 NW CORNELL ROAD, SUITE 220
BEAVERTON, OR 97006

Date Mailed: 01/03/2007

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/10/2006.

- The withdrawal as attorney in this application has been accepted. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

APRIL M WISE
OP (571) 272-1642

OFFICE COPY

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/053,651	01/18/2002	William Ho Chang	FLEX 2406

CONFIRMATION NO. 4711

OC000000021809653

OC000000021809653

7812
SMITH-HILL AND BEDELL, P.C.
16100 NW CORNELL ROAD, SUITE 220
BEAVERTON, OR 97006

Date Mailed: 01/03/2007

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/10/2006.

- The withdrawal as attorney in this application has been accepted. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

APRIL M WISE
OP (571) 272-1642

FORMER ATTORNEY/AGENT COPY

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
www.uspto.gov

BIBDATASHEET

CONFIRMATION NO. 4711

Bib Data Sheet

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/053,651	01/18/2002 RULE	358	2625	

APPLICANTS

William Ho Chang, Vancouver, WA;
Christina Ying Liu, Vancouver, WA;

**** CONTINUING DATA **********

This appln claims benefit of 60/262,764 01/19/2001

**** FOREIGN APPLICATIONS **********

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 03/19/2002

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☐ no	WA	14	22	3
35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged Examiner's Signature Initials				

ADDRESS

MR. WILLIAM H. CHANG
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. SANDY BLVD.
PORTLAND, OR97232-1959

TITLE

Methods for universal data output

FILING FEE RECEIVED		
456	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Smith-Hill and Bedell, P.C.
PATENT AND TRADEMARK LAWYERS

16100 NW Cornell Rd., Suite 220
Beaverton, Oregon 97006
Telephone: (503) 574-3100
Facsimile: (503) 574-3197

John Smith-Hill
Daniel J. Bedell

Jay R. Smith-Hill
Registered Patent Agent

RECEIVED
CENTRAL FAX CENTER
OCT 10 2006

FACSIMILE COVER SHEET

To: Special Programs Examiner Technology Center 2600	From: John Smith-Hill
Firm: US PATENT AND TRADEMARK OFFICE	Date: October 10, 2006
Fax: 1-571-273-8300	Our ref: FLEX 2406
Your ref: 10/053,651	Pages: Cover + 2

PAGE 1/3 * RCVD AT 10/10/2006 11:12:42 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-2/13 * DNIS:2738300 * CSID:503 574 3197 * DURATION (mm-ss):01-12

BEST AVAILABLE COPY

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

RECEIVED
CENTRAL FAX CENTER
OCT 10 2006

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William Ho CHANG et al

Application No: 10/053,651

Filed: January 18, 2002

For: METHODS FOR UNIVERSAL DATA OUTPUT

Confirmation No: 4711

Art Unit: 2625

Examiner: Scott A. Schlack

REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT
CHANGE OF CORRESPONDENCE ADDRESS
CHANGE OF FEE ADDRESS

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

Attention: Special Programs Examiner
Technology Center 2600

Sir:

Please withdraw me as attorney or agent for the above-identified patent matter and the following attorney/agents:

Daniel J. Bedell, Reg. No. 30,156
Jay R. Smith-Hill, Reg. No. 56,251

The reason for this request is that practitioner's client has failed to pay one or more bills rendered by the practitioner for an unreasonable period of time. The conduct of the practitioner's client renders it unreasonably difficult for the practitioner to carry out the employment effectively.

The normal period allowed for reply to the outstanding Office Action will expire November 23, 2006.

The current address of the applicant is:

Mr. William H. Chang
FLEXIWORLD TECHNOLOGIES, INC.
PMB 267
3439 N.E. Sandy Blvd.
Portland, Oregon 97232-1959

PAGE 2/3 * RCVD AT 10/10/2006 11:12:42 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-2/13 * DNIS:2738300 * CSID:503 574 3197 * DURATION (mm-ss):01-12

BEST AVAILABLE COPY

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Please remove from PTO records any association between this application and Customer Number 007812, whether as correspondence address or as fee address.

Respectfully submitted,

John Smith-Hill
Reg. No. 27,730

SMITH-HILL & BEDELL, P.C.
16100 N.W. Cornell Road, Suite 220
Beaverton, Oregon 97006

Tel. (503) 574-3100
Fax (503) 574-3197
Docket: FLEX 2406

Certificate of Mailing or Transmission

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, or facsimile transmitted to the U.S. Patent and Trademark Office, on the 10th day of October 2006.

John Smith-Hill

PAGE 3/3 * RCVD AT 10/10/2006 11:12:42 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-2/13 * DNIS:2738300 * CSID:503 574 3197 * DURATION (mm-ss):01-12

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Lexmark, Exhibit 1002
Lexmark v. Flexiworld

m-F

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang	FLEX 2406	4711

7812 7590 08/23/2006

SMITH-HILL AND BEDELL, P.C.
16100 NW CORNELL ROAD, SUITE 220
BEAVERTON, OR 97006

EXAMINER	
SCHLACK, SCOTT A	

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Office Action Summary	Application No.	Applicant(s)	
	10/053,651	CHANG ET AL.	
	Examiner	Art Unit	
	Scott A. Schlack	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-22* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

This application contains claims directed to the following patentably distinct species of the claimed invention: A: claims **2-5** and **7-10**, B: claims **12, 14** and **16-22**. The species are independent or distinct because the claims in group A deal with rasterization and processing of image(s) to be output, whereas the claims in group B deals with the discovery of the selected output device and communications between devices relating to the discovery process.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently claims **1, 6, 11, 13** and **15** appear to be generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission maybe used in a rejection under 35 U.S.C. 103(a) of the other invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Schlack whose telephone number is (571)272-7954. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A. Williams can be reached on (571)272-7471. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Note to the applicant: Art Unit 2624 has been redesignated as Art Unit 2625 due to organizational restructuring with the USPTO.

Scott A. Schlack

KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

Smith-Hill and Bedell, P.C.
PATENT AND TRADEMARK LAWYERS

12670 NW Barnes Rd., Suite 104
Portland, Oregon 97229
Telephone: (503) 574-3100
Facsimile: (503) 574-3197

John Smith-Hill
Daniel J. Bedell

RECEIVED
CENTRAL FAX CENTER
JAN 11 2005

FACSIMILE COVER SHEET

To: Art Unit 2626

Firm: US PATENT AND TRADEMARK OFFICE

Fax: 1-703-872-9306

Your ref: 10/053,651

From: John Smith-Hill

Date: January 11, 2005

Our ref: FLEX 2406

Pages: Cover + 1

BEST AVAILABLE COPY

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William Ho CHANG et al

Art Unit: 2626

Application No: 10/053,651

Examiner:

Filed: January 18, 2002

For: METHODS FOR UNIVERSAL DATA OUTPUT

STATUS INQUIRY

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

The image file wrapper for this application shows that the reply to the communication mailed January 27, 2004 was filed on February 27, 2004 but the current status of this application, as reflected in the PAIR record, indicates that a reply to the communication mailed January 27, 2004 is outstanding. It is respectfully requested that the PAIR record be updated to reflect filing of the reply to the communication mailed January 27, 2004 and that further action be taken on this application, which was filed almost three years ago.

Respectfully submitted,

John Smith-Hill
Reg. No. 27,730

SMITH-HILL & BEDELL, P.C.
12670 NW Barnes Road, Suite 104
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In re Application of

William Ho CHANG et al

Art Unit: 2626

Application No: 10/053,651

Examiner:
Mark E. Wallerson

Filed: January 18, 2002

For: METHODS FOR UNIVERSAL DATA OUTPUT

REPLY TO COMMUNICATION MAILED 01/27/2004

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,651	01/18/2002	William Ho Chang	FLEX 2406	4711

7812 7590 01/27/2004

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
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Transmitted herewith for filing is the patent application of:

Inventors: Christina Ying LIU
William Ho CHANG

Filing Date:

For: METHODS FOR UNIVERSAL DATA OUTPUT

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PRIORITY CLAIM

Priority of _____ Patent/Design Application No. _____ filed on _____is hereby claimed.

[ ] A certified copy of the priority application is enclosed.

SMALL ENTITY STATUS

The undersigned representative asserts small entity status with respect to this application.

Respectfully submitted,

John Smith-Hill
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METHODS FOR UNIVERSAL DATA OUTPUT

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims benefit of Provisional Application No. 60/262,764 filed January 19, 2001, the entire disclosure of which is hereby incorporated by reference herein for all purposes.

TECHNICAL FIELD OF THE INVENTION

[0002] Present invention relates to providing content to an output device and, in particular, to providing universal output in which an information apparatus can pervasively output content to an output device without the need to install a dedicated device dependent driver or applications for each output device.

BACKGROUND OF THE INVENTION

[0003] The present invention relates to universal data output and, in particular, to providing a new data output method and a new raster image process for information apparatuses and output devices.

[0004] As described herein, information apparatuses refer generally to computing devices, which include both stationary computers and mobile computing devices (pervasive devices). Examples of such information apparatuses include, without limitation, desktop computers, laptop computers, networked computers, palmtop computers (hand-held computers), personal digital assistants (PDAs), Internet enabled mobile phones, smart phones, pagers, digital capturing devices (e.g., digital cameras and video cameras), Internet appliances, e-books, information pads, and digital or web pads. Output devices may include, without limitation, fax machines, printers, copiers, image and/or video display devices (e.g., televisions, monitors and projectors), and audio output devices.

[0005] For simplicity and convenience, hereafter, the following descriptions may refer to an output device as a printer and an output process as printing. However, it should be understood that the term printer and printing used in the discussion of present invention refer to one embodiment used as a specific example to simplify the description of the invention. The references to printer and printing used here are intended to be applied or extended to the larger scope and definition of output devices and

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should not be construed as restricting the scope and practice of present invention.

[0006] Fueled by an ever-increasing bandwidth, processing power, wireless mobile devices, and wireless software applications, millions of users are or will be creating, downloading, and transmitting content and information using their pervasive or mobile computing devices. As a result, there is a need to allow users to conveniently output content and information from their pervasive computing devices to any output device. As an example, people need to directly and conveniently output from their pervasive information apparatus, without depending on synchronizing with a stationary computer (e.g., desktop personal computer) for printing.

[0007] To illustrate, a mobile worker at an airport receiving e-mail in his hand-held computer may want to walk up to a nearby printer or fax machine to have his e-mail printed. In addition, the mobile worker may also want to print a copy of his to-do list, appointment book, business card, and his flight schedule from his mobile device. As another example, a user visiting an e-commerce site using his mobile device may want to print out transaction confirmation. In still another example, a user who takes a picture with a digital camera may want to easily print it out to a nearby printer. In any of the above cases, the mobile user may want to simply walk up to a printer and conveniently print a file (word processing document, PDF, HTML etc) that is stored on the mobile device or downloaded from a network (e.g., Internet, corporate network).

[0008] Conventionally, an output device (e.g., a printer) is connected to an information apparatus via a wired connection such as a cable line. A wireless connection is also possible by using, for example, radio communication or infrared communication. Regardless of wired or wireless connection, a user must first install in the information apparatus an output device driver (e.g., printer driver in the case the output device is a printer) corresponding to a particular output device model and make. Using a device-dependent or specific driver, the information apparatus may process output content or digital document into a specific output device's input requirements (e.g., printer input requirements). The output device's input requirements correspond to the type of input that the output device (e.g., a printer) understands. For example, a printer's input requirement may include printer specific input format (e.g., one or more of an image,

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graphics or text format or language). Therefore, an output data (or print data in the case the output device is a printer) herein refers to data that is acceptable for input to an associated output device. Examples of input requirements may include, without limitation, audio format, video format, file format, data format, encoding, language (e.g., page description language, markup language etc), instructions, protocols or data that can be understood or used by a particular output device make and model.

[0009] Input requirements may be based on proprietary or published standards or a combination of the two. An output device's input requirements are, therefore, in general, device dependent. Different output device models may have their own input requirements specified, designed or adopted by the output device manufacturer (e.g., the printer manufacturer) according to a specification for optimal operation. Consequently, different output devices usually require use of specific output device drivers (e.g., printer drivers) for accurate output (e.g., printing). Sometimes, instead of using a device driver (e.g., printer driver), the device driving feature may be included as part of an application software.

[0010] Installation of a device driver (e.g., printer driver) or application may be accomplished by, for example, manual installation using a CD or floppy disk supplied by the printer manufacturer. Or alternatively, a user may be able to download a particular driver or application from a network. For a home or office user, this installation process may take anywhere from several minutes to several hours depending on the type of driver and user's sophistication level with computing devices and networks. Even with plug-and-play driver installation, the user is still required to execute a multi-step process for each printer or output device.

[0011] This installation and configuration process adds a degree of complexity and work to end-users who may otherwise spend their time doing other productive or enjoyable work. Moreover, many unsophisticated users may be discouraged from adding new peripherals (e.g., printers, scanners, etc.) to their home computers or networks to avoid the inconvenience of installation and configuration. It is therefore desirable that an information apparatus can output to more than one output device without the inconvenience of installing multiple dedicated device dependent drivers.

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[0012] In addition, conventional output or printing methods may pose significantly higher challenges and difficulties for mobile device users than for home and office users. The requirement for pre-installation of a device-dependent driver diminishes the benefit and concept of mobile (pervasive) computing and output. For example, a mobile user may want to print or output e-mail, PowerPoint® presentation documents, web pages, or other documents at an airport, gas station, convenience store, kiosk, hotel, conference room, office, home, etc. It is highly unlikely that the user would find at any of these locations a printer of the same make and model as is at the user's base station. As a consequence, under the conventional printing method, the user would have to install and configure a printer driver each time at each such remote location before printing. It is usually not a viable option given the hundreds, or even thousands of printer models in use, and the limited storage, memory space, and processing power of the information apparatus.

[0013] Moreover, the user may not want to be bothered with looking for a driver or downloading it and installing it just to print out or display one page of email at the airport. This is certainly an undesirable and discouraging process to promote pervasive or mobile computing. Therefore, a more convenient printing method is needed in support of the pervasive computing paradigm where a user can simply walk up to an output device (e.g., printer or display device) and easily output a digital document without having to install or pre-install a particular output device driver (e.g., printer driver).

[0014] Another challenge for mobile users is that many mobile information apparatuses have limited memory space, processing capacity and power. These limitations are more apparent for small and low-cost mobile devices including, for example, PDAs, mobile phones, screen phones, pagers, e-books, Internet Pads, Internet appliances etc. Limited memory space poses difficulties in installing and running large or complex printer or device drivers, not to mention multiple drivers for a variety of printers and output devices. Slow processing speed and limited power supply create difficulties driving an output device. For example, processing or converting a digital document into output data by a small mobile information apparatus may be so slow that it is not suitable for productive output. Intensive processing may also drain or consume power or battery resources. Therefore, a method is needed so that a small mobile device, with limited processing

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capabilities, can still reasonably output content to various output devices.

[0015] To output or render content (e.g. digital document) to an output device, a raster image processing (RIP) operation on the content is usually required. RIP operation can be computationally intensive and may include (1) a rasterization operation, (2) a color space conversion, and (3) a halftoning operation. RIP may also include other operations such as scaling, segmentation, color matching, color correction, GCR (Grey component replacement), Black generation, image enhancement compression/decompression, encoding/decoding, encryption/decryption GCR, image enhancement among others.

[0016] Rasterization operation in RIP involves converting objects and descriptions (e.g. graphics, text etc) included in the content into an image form suitable for output. Rasterization may include additional operations such as scaling and interpolation operations for matching a specific output size and resolution. Color space conversion in RIP includes converting an input color space description into a suitable color space required for rendering at an output device (e.g. RGB to CMYK conversion). Digital halftoning is an imaging technique for rendering continuous tone images using fewer luminance and chrominance levels. Halftoning operations such as error diffusion can be computationally intensive and are included when the output device's bit depth (e.g. bits per pixel) is smaller than the input raster image bit depth.

[0017] Conventionally, RIP operations are included either in an information apparatus, or as part of an output device or output system (e.g. in a printer controller). Fig. 1A illustrates a flow diagram of a conventional data output method 102 in which RIP 110 is implemented in the information apparatus. Output devices that do not include a printer controller to perform complex RIP operations, such as a lower-cost, lower speed inkjet printer, normally employ data output method 102. In data output method 102, an information apparatus obtains content (e.g. a digital document) in step 100 for rendering or output at an output device. The information apparatus may includes an application (e.g. device driver), which implements RIP operation 110. The information apparatus generates an output data in step 120 and transmits the output data to the output device in step 130 for rendering. The output data relating to the content is in an acceptable form (e.g. in an appropriate output size and resolution) to the output engine (e.g. display engine, printer

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engine etc.) included in the output device. The output data in a conventional output method 102 is usually device dependent.

[0018] One drawback for the data output method 102 of Fig. 1A is that the information apparatus performs most if not the entire raster image processing operations 110 required for output. The RIP operations may require intensive computation. Many information apparatus such as mobile information device might have insufficient computing power and/or memory to carry out at an acceptable speed the RIP operations 110 required in an output process.

[0019] Another drawback for the conventional data output method 102 of Fig. 1A is that the generated output data is device dependent and therefore is typically not very portable to other output devices. As a result, the information apparatus may need to install multiple applications or device drivers for multiple output devices, which may further complicate its feasibility for use in information apparatuses with limited memory, storage and processing power.

[0020] Fig. 1B illustrates a flow diagram of another conventional data output method 104 in which the RIP is implemented in an output device. An example of an output device that implements process 104 is a high-speed laser printer which includes a printer controller for performing RIP operations and an output engine (e.g. printer engine) for rendering content. Printer controller may be internally installed or externally connected to an output device (printer in this example). In data output method 104, an information apparatus obtains content for output in step 100 and generates in step 160 an output data or print data for transmitting to the output device in step 170. Print data includes information related to the content and is usually encoded in a page description language (PDL) such as PostScript and PCL etc. In step 180, the printer receives the output data or print data (in a PDL). In step 190, a printer controller included in the printer interprets the PDL, performs RIP operations, and generates a printer-engine print data that is in a form acceptable to the printer engine (e.g. a raster image in an appropriate output size, bit depth, color space and resolution). In step 150 the printer engine renders the content with the printer-engine print data.

[0021] It will be understood that a reference to print data or output data including a language, such as PDL, should be interpreted as meaning that the print data or output data is encoded using that language. Correspondingly, a reference to a data output process generating a language, such as PDL, should be

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interpreted as meaning that the data output process encodes data using that language.

[0022] There are many drawbacks in the conventional data output method 104 shown in Fig 1B. These drawbacks are especially apparent for mobile computing devices with limited processing power and memory. One such drawback is that the output data or print data, which include a page description language (PDL) such as PostScript or PCL, can be very complex. Generating complex PDL may increase memory and processing requirements for an information apparatus. Furthermore, interpreting, decoding and then raster image processing complex PDL can increase computation, decrease printing speed, and increase the cost of the output device or its printer controller.

[0023] Another drawback is that the output data that includes PDL can creates a very large file size that would increase memory and storage requirements for the information apparatus, the output device and/or the printer controller etc. Large file size may also increase the bandwidth required in the communication link between the information apparatus and the output device.

[0024] Finally, to rasterize text in an output device, a printer controller may need to include multiple fonts. When a special font or international characters is not included or missing in the printer controller, the rendering or output can potentially become inaccurate or inconsistent.

SUMMARY OF THE INVENTION

[0025] Accordingly, this invention provides a convenient universal data output method in which an information apparatus and an output device or system share the raster image processing operations. Moreover, the new data output method eliminates the need to install a plurality of device-dependent dedicated drivers or applications in the information apparatus in order to output to a plurality of output devices.

[0026] In accordance with present invention, an electronic system and method of pervasive and universal output allow an information apparatus to output content conveniently to virtually any output device. The information apparatus may be equipped with a central processing unit, input/output control unit, storage unit, memory unit, and wired or wireless communication unit or adapters. The information apparatus preferably includes a client application that may be implemented as a software application, a helper application, or a device driver (a printer driver in case of a

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printer). The client application may include management and control capabilities with hardware and software components including, for example, one or more communication chipsets residing in its host information apparatus.

[0027] The client application in the information apparatus may be capable of communicating with, managing and synchronizing data or software components with an output device equipped with an output controller of present invention.

[0028] Rendering content in an output device refers to printing an image of the content onto an substrate in the case of a printing device; displaying an image of the content in the case of a displaying device; playing an audio representation of the content in a voice or sound output device or system.

[0029] An output controller may be a circuit board, card or software components residing in an output device. Alternatively, the output controller may be connected externally to an output device as an external component or "box." The output controller may be implemented with one or more combinations of embedded processor, software, firmware, ASIC, DSP, FPGA, system on a chip, special chipsets, among others. In another embodiment, the functionality of the output controller may be provided by application software running on a PC, workstation or server connected externally to an output device.

[0030] In conventional data output method 102 as described with reference to Fig. 1A, an information apparatus transmits output data to an output device for rendering. Output data corresponds to content intended for output and is mostly raster image processed (RIPed) and therefore is device dependent because raster image processing is a typical device dependent operation. Output data may be encoded or compressed with one or more compression or encoding techniques. In present invention, an information apparatus generates an intermediate output data for transmitting to an output device. The intermediate output data includes a rasterized image corresponding to the content; however, device dependent image processing operations of a RIP (e.g. color matching and halftoning) have not been performed. As a result, an intermediate output data is more device independent and is more portable than the output data generated by output method with reference to Fig 1A.

[0031] In one implementation of this invention, the intermediate output data includes MRC (Mixed raster content) format, encoding and compression techniques, which further provides

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improved image quality and compression ratio compared to conventional image encoding and compression techniques.

[0032] In an example of raster image process and data output method of the present invention, a client application such as a printer driver is included in an information apparatus and performs part of raster image processing operation such as rasterization on the content. The information apparatus generates an intermediate output data that includes an output image corresponding to the content and sends the intermediate output data to an output device or an output system for rendering. An output controller application or component included in the output device or output system implements the remaining part of the raster image processing operations such as digital halftoning, color correction among others.

[0033] Like conventional raster image processing methods, this invention provides a more balanced distribution of the raster image processing computational load between the Information apparatus and the output device or the output system. Computational intensive image processing operations such as digital halftoning and color space conversions can be implemented in the output device or output system. Consequently, this new raster image processing method reduces the processing and memory requirements for the information apparatus when compared to conventional data output methods described with reference to Fig 1A in which the entire raster image process is implemented in the information apparatus. Additionally, in this invention, a client application or device driver included in the information apparatus, which performs part of the raster image processing operation, can have a smaller size compared to a conventional output application included in the information apparatus, which performs raster image processing operation.

[0034] In another implementation, the present invention provides an information apparatus with output capability that is more universally accepted by a plurality of output devices. The information apparatus, which includes a client application, generates an intermediate output data that may include device independent attributes. An output controller includes components to interpret and process the intermediate output data. The information apparatus can output content to different output devices or output systems that include the output controller even when those output devices are of different brand, make, model and with different output engine and input data requirements. Unlike conventional output methods, a user does not need to preinstall in

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the information apparatus multiple dedicated device dependent drivers or applications for each output device.

[0035] The combination of a smaller-sized client application, a reduced computational requirement in the information apparatus, and a more universal data output method acceptable for rendering at a plurality of output devices enable mobile devices with less memory space and processing capabilities to implement data output functions which otherwise would be difficulty to implement with conventional output methods.

[0036] In addition, this invention can reduce the cost of an output device or an output system compared to conventional output methods 104 that include a page description language (PDL) printer controller. In the present invention, an information apparatus generates and sends an intermediate output data to an output device or system. The intermediate output data in one preferred embodiment includes a rasterized output image corresponding to the content intended for output. An output controller included in an output device or an output system decodes and processes the intermediate output data for output, without performing complex interpretation and rasterization compared to conventional methods described in process 104. In comparison, the conventional data output process 104 generates complex PDL and sends this PDL from an information apparatus to an output device that includes a printer controller (e.g. a PostScript controller or a PCL5 controller among others). Interpretation and raster image processing of a PDL have much higher computational requirements compared to decoding and processing the intermediate output data of this invention that include rasterized output image or images. Implementing a conventional printer controller with, for example, PDL increases component cost (e.g. memories, storages, ICs, software and processors etc.) when compared to using the output controller included in the data output method of this present invention.

[0037] Furthermore, an output data that includes PDL can create a large file size compared to an intermediate output data that includes rasterized output image. The data output method for this invention comparatively transmits a smaller output data from an information apparatus to an output device. Smaller output data size can speed up transmission, lower communication bandwidth, and reduce memory requirements. Finally, this invention can provide a convenient method to render content at an output device with or without connection to a static network. In conventional network printing, both information apparatus and output device must be

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connected to a static network. In this invention, through local communication and synchronization between an information apparatus and an output device, installation of hardware and software to maintain static network connectivity may not be necessary to enable the rendering of content to an output device.

[0038] According to the several aspects of the present invention there is provided the subject matter defined in the appended independent claims.

[0039] Additional objects and advantages of the present invention will be apparent from the detailed description of the preferred embodiment thereof, which proceeds with reference to the accompanying drawings.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0040] Fig. 1A is a flow diagram of a conventional data output method and its corresponding raster image process in accordance with prior art.

[0041] Fig. 1B is a flow diagram of a second conventional data output method and its corresponding raster image process for an output device that includes a conventional printer controller in accordance with prior art.

[0042] Figs. 2A and 2B are block diagrams illustrating components of an operating environment that can implement the process and apparatus of the present invention.

[0043] Fig. 3A is a schematic block diagram illustrating hardware/software components of an information apparatus implementation in accordance with present invention. The information apparatus includes an operating system.

[0044] Fig. 3A is a second schematic block diagram illustrating hardware/software components of an information apparatus implementation in accordance with present invention.

[0045] Fig. 4A is a block diagram of a conventional printing system or printer with a conventional printer controller.

[0046] Fig. 4B is a block diagram of a second conventional output system or output device.

[0047] Fig. 5A is a schematic block diagram of a printing system or printer with a conventional printer controller and an output controller in accordance with present invention.

[0048] Fig. 5B is a schematic block diagram of a second output system or output device that includes an output controller in accordance with present invention.

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[0049] Fig. 6A is a schematic block diagram illustrating hardware/software components of an output controller in accordance with present invention. The output controller includes an operating system.

[0050] Fig. 6B is a second schematic block diagram illustrating hardware/software components of an output controller in accordance with present invention. The output controller does not include an operating system.

[0051] Fig. 6C is a third schematic block diagram illustrating hardware/software components of an output controller in accordance with present invention. The output controller combines the functionality of a printer controller and an output controller of present invention.

[0052] Figs. 7A-7F illustrate various configurations and implementations of output controller with respect to an output device such as a printer.

[0053] Fig. 8A is a block diagram illustrating an exemplary implementation of hardware/software components of wireless communication unit.

[0054] Fig. 8B is block diagram illustrating a second exemplary implementation of hardware/software components of wireless communication unit.

[0055] Fig. 9 is a flow diagram of a universal data output method and its corresponding raster imaging process of the present invention.

[0056] Fig. 10 is a block diagram of a universal data output method of the present invention with respect to the components, system and apparatus described with reference to Fig 2.

[0057] Fig. 11 is a flow diagram illustrating one way of implementing a discovery process optionally included in the output process of Fig. 10.

[0058] Fig. 12A and 12B are flow diagrams of exemplary client application process included in the output process of Fig. 10.

[0059] Fig. 13A and 13B are flow diagrams of exemplary output device or output system process included in the output process of Fig. 10.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0060] Sets forth below are definitions of terms that are used in describing implementations of the present invention. These definitions are provided to facilitate understanding and illustration of implementations of the present invention and should

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in no way be construed as limiting the scope of the invention to a particular example, class, or category.

Output device profile (or object)

[0061] An output device profile (or object) includes software and data entity, which encapsulates within itself both data and attributes describing an output device and instructions for operating that data and attributes. An output device profile may reside in different hardware environments or platforms or applications, and may be transported in the form of a file, a message, a software object or component among other forms and techniques. For simplicity of discussion, a profile or object may also include, for example, the concept of software components that may have varying granularity and can consist of one class, a composite of classes, or an entire application.

[0062] The term profile or object used herein is not limited to software or data as its media. Any entity containing information, descriptions, attributes, data, instructions etc. in any computer-readable form or medium such as hardware, software, files based on or including voice, text, graphics, image, or video information, electronic signals in analog or digital form, etc., are all valid forms of profile and object definition.

[0063] A profile or object may also contain in one of its fields or attributes a reference or pointer to another profile or object, or a reference or pointer to data and or content. A reference to a profile or object may include one or more, or a combination of pointers, identifiers, names, paths, addresses or any descriptions relating to a location where an object, profile, data, or content can be found.

[0064] An output device profile may contain one or more attributes that may identify and describe, for example, the capabilities and functionalities of a particular output device such as a printer. An output device profile may be stored in the memory component of an output device, an information apparatus or in a network node. A network node includes any device, server or storage location that is connected to the network. As described below in greater detail, an information apparatus requesting output service may communicate with an output device. During such local service negotiation, at least a partial output device profile may be uploaded to the information apparatus from the output device. By obtaining the output device profile (or printer profile in the case of a printer), the information apparatus may learn about the

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capability, compatibility, identification, and service provided by the output device.

[0065] As an example, an output device profile may contain one or more of the following fields and or attribute descriptions. Each of following fields may be optional, and furthermore, each of the following fields or attributes may or may not exist in a particular implementation (e.g., may be empty or NULL):

[0066] Identification of an output device (e.g., brand, model, registration, IP address etc.)

- Services and feature sets provided by an output device (e.g., color or grayscale output, laser or inkjet, duplex, output quality, price per page, quality of service, etc.)
- Type of input languages, formats, output data and/or input requirements (e.g., PostScript, PCL, XML, RTL, etc.) supported by an output device.
- Device specific or dependent parameters and information (e.g., communication protocols, color space, color management methods and rendering intents, resolution, halftoning methods, dpi (dots-per-inch), bit depth, page size, printing speed, number of independent colors channels or ink etc.)
- Data and tables needed for image processing such as color table, halftone table, scale factor, encoding/decoding parameters and methods, compression and decompression parameters and method etc.
- Another profile which contain parameters and information about the output device and its service (e.g. color profiles, halftoning profiles, communication profiles, rasterization profiles, quality of service etc.).
- Payment information on a plurality of services provided by an output device.
- Information or security requirements and type of authentication an output device supports.
- Date and version of the output device profile, history of its modification and updates.
- Software components containing algorithms or instructions or data, which may be uploaded to run in an information apparatus. For example, a graphical user interface (GUI) software component may be uploaded to an information apparatus. The software component may be incorporated into or launched in the information apparatus by a client application of present invention to capture a user's preferences (e.g., print quality, page layout, number of copies, number of cards per page, etc.). In another example,

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software components may include methods, instructions or executables for compression/decompression, encoding/decoding, color matching or correction, segmentation, scaling, halftoning, encryption/decryption among others.

• Pointer or reference to one or more output device parameters, including one or more of the above described output device profile or object fields and or attribute descriptions. For example, a more up-to-date or original version of output device parameters may sometimes be stored in a network node (any device, server or storage location that is connected to the network), or within the information apparatus where it can be obtained by the client application. An output device profile may include pointer or pointers to these output device parameters.

Content (or data content, digital content, output content)

[0067] Content (or data content, digital content, output content) is the data intended for output, which may include texts, graphics, images, forms, videos, audio among other content types. Content may include the data itself or a reference to that data. Content may be in any format, language, encoding or combination, and it can be in a format, language or encoding that is partially or totally proprietary. A digital document is an example of content that may include attributes and fields that describe the digital document itself and or reference or references to the digital document or documents. Examples of a digital document may be any one or combination of file types: HTML, VHTML, PostScript, PCL, XML, PDF, MS Word, PowerPoint, JPEG, MPEG, GIF, PNG, WML, VWML, CHTML, HDML, ASCII, 2-byte international coded characters, etc. Content may be used interchangeably with the term data content, output content or digital content in the descriptions of present invention.

Intermediate output data

[0068] Output data (or print data in case of a printer) is the electronic data sent from an information apparatus to an output device. Output data is related to the content intended for output and may be encoded in a variety of formats and languages (e.g. postscript, PCL, XML), which may include compressed or encrypted data. Some output device manufacturers may also include in the output data (or print data) a combination of proprietary or non-proprietary languages, formats, encoding, compression, encryption etc.

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[0069] Intermediate output data is the output data of the present invention, and it includes the broader definition of an output file or data generated by an information apparatus, or a client application or device driver included in the information apparatus. An intermediate output data may contain text, vector graphics, images, video, audio, symbols, forms or combination and can be encoded with one or more of a page description language, a markup language, a graphics format, an imaging format, a metafile among others. An intermediate output data may also contain instructions (e.g. output preferences) and descriptions (e.g. data layout) among others. Part or all of an intermediate output data may be compressed, encrypted or tagged.

[0070] In a preferred embodiment of this invention, intermediate output data contains rasterized image data. For example, vector graphics and text information or objects that are not in image form included in content can be rasterized or conformed into image data in an information apparatus and included in an intermediate output data. Device dependent image processing operations of a RIP such as digital halftoning and color space conversions can be implemented at an output device or an output system.

[0071] The intermediate output data can be device dependent or device independent. In one implementation, the rasterized output image is device dependent if the rasterization parameters used, such as resolution, scale factor, bit depth, output size and or color space are device dependent. In another implementation of this invention, the rasterized image may be device independent if the rasterization parameters used are device independent. Rasterization parameter can become device independent when those parameters include a set of predetermined or predefined rasterization parameters based on a standard or a specification. With predefined or device independent rasterization parameters, a client application of present invention can rasterize at least a portion of the content and generate a device independent image or images included in the intermediate output data. By doing so, the intermediate output data may become device independent and therefore, become universally acceptable with output devices that have been pre-configured to accept the intermediate output data.

[0072] One advantage of rasterizing or converting text and graphics information into image data at the information apparatus is that the output device or printer controller no longer needs to perform complex rasterization operation nor do they need to include

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multiple fonts. Therefore, employing the intermediate output data and the data output method described herein could potentially reduce the cost and complexity of an output controller, printer controller and or output device.

[0073] One form of image data encoding is known as mixed raster content, or MRC. Typically, an image stored in MRC includes more than one image or bitmap layers. In MRC, an image can be segmented in different layers based on segmentation criteria such as background and foreground, luminance and chrominance among others. For example, an MRC may include three layers with a background layer, a foreground layer and a toggle or selector layer. The three layers are coextensive and may include different resolution, encoding and compression. The foreground and background layers may each contain additional layers, depending on the manner in which the respective part of the image is segmented based on the segmentation criteria, component or channels of a color model, image encoding representation (HLS, RGB, CMYK, YCC, LAB etc) among others. The toggle layer may designate, for each point, whether the foreground or background layer is effective. Each layer in a MRC can have different bit depths, resolution, color space, which allow, for example, the foreground layer to be compressed differently from the background layer. The MRC form of image data has previously been used to minimize storage requirements. Further, an MRC format has been proposed for use in color image fax transmission.

[0074] In one embodiment of present invention, the intermediate output data includes one or more rasterized output images that employ MRC format, encoding and or related compression method. In this implementation, different layers in the output image can have different resolutions and may include different compression techniques. Different information such as chrominance and luminance and or foreground and background information in the original content (e.g. digital document) can be segmented and compressed with different compression or encoding techniques. Segmented elements or object information in the original content can also be stored in different image layers and with different resolution. Therefore, with MRC, there is opportunity to reduce output data file size, retain greater image information, increase compression ratio, and improve image quality when compared to other conventional image encoding and compression techniques. Implementations of rasterization, raster image processing and

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intermediate output data that include MRC encoding in the present invention are described in more detail below.

Rasterization

[0075] Rasterization is an operation by which graphics and text in a digital document are converted to image data. For image data included in the digital document, rasterization may include scaling and interpolation. The rasterization operation is characterized by rasterization parameters including, among others bit depth and resolution. A given rasterization operation may be characterized by several more rasterization parameters, including output size, color space, color channels etc. Values of one or more of the rasterization parameters employed in a rasterization operation may be specified by default; values of one or more of the rasterization parameters may be supplied to the information apparatus as components of a rasterization vector. In a given application, the rasterization vector may specify a value of only one rasterization parameter, default values being employed for other rasterization parameters used in the rasterization operation. In another application the rasterization vector may specify values of more than one, but less than all, rasterization parameters, default values being employed for at least one other rasterization parameter used in the rasterization operation. And in yet another application the rasterization vector may specify values of all the rasterization parameters used in the rasterization operation.

[0076] Fig. 2A and 2B are block diagrams illustrating components of an operating environment that can implement the process and apparatus of present invention. Fig 2A shows an electronic system which includes an information apparatus 200 and an output device 220. The output device 220 includes an output controller 230. Fig. 2B illustrates a second implementation of an electronic system that includes an information apparatus 200 and an output system 250. The output system 250 includes an output device 220 and an output controller 230 which may be externally connected to, or otherwise associated with, the output device 220 in the output system 250.

[0077] Information apparatus 200 is a computing device with processing capability. In one embodiment, information apparatus 200 may be a mobile computing device such as palmtop computer, handheld device, laptop computer, personal digital assistant (PDA), smart phone, screen phone, e-book, Internet pad, communication pad, Internet appliance, pager, digital camera, etc. It is possible

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that information apparatus 200 may also include a static computing device such as a desktop computer, workstation, server, etc.

[0078] Fig. 3A and 3B are block diagrams illustrating examples of hardware/software components included in an information apparatus 200 of present invention.

[0079] Information apparatus 200 may contain components such as a processing unit 380, a memory unit 370, an optional storage unit 360 and an input/output control unit (e.g. communication manager 330). Information apparatus 200 may include an interface (not shown) for interaction with users. The interface may be implemented with software or hardware or a combination. Examples of such interfaces include, without limitation, one or more of a mouse, a keyboard, a touch-sensitive or non-touch-sensitive screen, push buttons, soft keys, a stylus, a speaker, a microphone, etc.

[0080] Information apparatus 200 typically contains one or more network communication unit 350 that interfaces with other electronic devices such as network node (not shown), output device 220, and output system 230. The network communication unit may be implemented with hardware (e.g., silicon chipsets, antenna), software (e.g., protocol stacks, applications) or a combination.

[0081] In one embodiment of the present invention, communication interface 240 between information apparatus 200 and output device 220 or output system 250 is a wireless communication interface such as a short-range radio interface including those implemented according to the Bluetooth or IEEE 802.11 standard. The communication interface may also be realized by other standards and/or means of wireless communication that may include radio, infrared, cellular, ultrasonic, hydrophonic among others for accessing one or more network node and/or devices. Wired line connections such as serial or parallel interface, USB interface and fire wire (IEEE 1394) interface, among others, may also be included. Connection to a local network such as an Ethernet or a token Ring network, among others, may also be implemented in the present invention for local communication between information apparatus 200 and output device 220. Examples of hardware/software components of communication units 350 that may be used to implement wireless interface between the information apparatus 200 and the output device 220 are described in more detail with reference to Figs. 8A and 8B below.

[0082] For simplicity, Fig. 3 illustrates one implementation where an information apparatus 200 includes one communication unit 350. However, it should be noted that an information apparatus 200

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may contain more than one communication unit 350 in order to support different interfaces, protocols, and/or communication standards with different devices and/or network nodes. For example, information apparatus 200 may communicate with one output device 220 through a Bluetooth standard interface or through an IEEE 802.11 standard interface while communicating with another output device 220 through a parallel cable interface. The information apparatus 200 may also be coupled to a wired or wireless network (e.g. the Internet or corporate network) to send, receive and/or download information.

[0083] Information apparatus 200 may be a dedicated device (e.g., email terminal, web terminal, digital camera, e-book, web pads, Internet appliances etc.) with functionalities that are pre-configured by manufacturers. Alternatively, information apparatus 200 may allow users to install additional hardware components and or application software 205 to expand its functionality.

[0084] Information apparatus 200 may contain a plurality of applications 205 to implement its feature sets and functionalities. As an example, a document browsing or editing application may be implemented to help user view and perhaps edit, partially or entirely, digital documents written in certain format or language (e.g., page description language, markup language, etc.). Digital documents may be stored locally in the information apparatus 200 or in a network node (e.g., in content server). An example of a document browsing application is an Internet browser such as Internet Explorer, Netscape Navigator, or a WAP browser. Such browsers may retrieve and display content (e.g. digital content) written in mark-up languages such as HTML, WML, XML, CHTML, HDML, among others. Other examples of software applications in the information apparatus 200 may include a document editing software such as Microsoft Word™ which also allows users to view and or edit digital documents that have various file extensions (e.g., doc, rtf, html, XML etc.) whether stored locally in the information apparatus 200 or in a network node. Still, other example of software applications 205 may include image acquisition and editing software.

[0085] As illustrated previously with reference to Fig. 1, there are many difficulties in providing output capability to an information apparatus 200 that has limited memory and processing capability. To address theses difficulties, information apparatus 200 includes a client application 210 that helps provide the universal data output capability of the present invention. Client

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application 210 may include software and data that can be executed by the processing unit 380 of information apparatus 200. Client application 210 may be implemented as a stand-alone software application or as a part of or feature of another software application, or in the form of a device driver, which may be invoked, shared and used by other application software 205 in the information apparatus 200. Client application 210 may also include components to invoke other applications 205 (e.g., a document browsing application, editing application, data and/or image acquisition application, a communication manager, a output manager etc.) to provide certain feature sets, as described below. Fig 3 illustrates a configuration where the client application 210 is a separate application from the other application 205 such as the case when the client application is a device driver; however, it should be noted that the client application 210 can be combined or being part of the other application not shown in Fig 3. Client application 210 may be variously implemented in an information apparatus 200 and may run on different operating systems or platforms. The client application 210 may also run in an environment with no operating system. For example, Fig. 3A illustrates an implementation where the information apparatus 200A includes an operating system 340A; while Fig. 3B illustrates an implementation where the information apparatus 200B does not include an operating system.

[0086] Client application 210 includes a rasterization component 310 to conform content into one or more raster output images according to one or more rasterization parameters; an intermediate output data generator component 320 that generates and/or encodes intermediate output data that includes the one or more output images; and a communications manager 330 that manages the communication and interaction with an output device 220 or system 250 or output controller 230. Communications manager can be implemented as part of the client application 210 (shown in Fig. 3) or as a separate application (not shown). Components in a client application can be implemented in software, hardware or combination. As an example, client application 210 may include or utilize one or more of the following:

- Components or operations to obtain content (e.g. digital document) for output. The client application 210 may obtain a digital document from other applications 205 (e.g. document browsing application, content creation and editing application,

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etc.), or the client application 210 may provide its own capability for user to browse, edit and or select a digital document.

• Components or operations to rasterize content that includes text, graphics and images among others objects or elements into one or more raster images according to a set of rasterization parameters such as scale factor, output size, bit depth, color space and resolution. The rasterization parameters may be obtained in various ways, for example, from an output device profile uploaded from an output device 220, or stored locally in information apparatus 200, or manually inputted by a user. Alternatively, rasterization parameters may be based on a predefined standard or specification stored in the information apparatus 200 as a set of defaults, or hard-coded in the client application 210, or calculated by the client application 210 after communicating with an output device 220, output controller 230, and/or a user.

• Components or operations to generate intermediate output data that includes at least one rasterized output image corresponding to the content (e.g. digital document). This process may further include one or combination of compression, encoding, encryption and color correction among others. The intermediate output data may include, for example, images, instructions, documents and or format descriptions, color profiles among others.

• Components or operations to transmit the intermediate output data to an output device 220 or system 250 through wired or wireless communication link 240.

[0087] The client application 210 may also optionally include or utilize one or more of the following components or operations:

• Components or operations to communicate with one or more output devices 220 to upload an output device profile.

• Components or operations to communicate directly or indirectly (such as through an operating system or component or object model, messages, file transfer etc.) with other applications 205 residing in the same information apparatus 200 to obtain objects, data, and or content needed, or related to the pervasive output process of present invention (e.g. obtain a digital document for printing).

• Components or operations to manage and utilize directly or indirectly functionalities provided by hardware components (e.g. communication unit 350) residing in its host information apparatus 200.

• Components or operations to provide a graphical user

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interface (GUI) in host information apparatus to interact with user.

• Components or operations to obtain user preferences. For example, a user may directly input his or her preferences through a GUI. A set of default values may also be employed. Default values may be pre-set or may be obtained by information apparatus 200 as result of communicating and negotiating with an output device 220 or output controller 230.

[0088] The above functionalities and process of client application 210 of present invention are described in further detail in the client application process with reference to FIG 12.

[0089] Output device 220 is an electronic system capable of outputting digital content regardless of whether the output medium is substrate (e.g., paper), display, projection, or sound. A typical example of output device 220 is a printer, which outputs digital documents containing text, graphics, image or any combination onto a substrate. Output device 220 may also be a display device capable of displaying still images or video, such as, without limitation, televisions, monitors, and projectors. Output device 220 can also be a device capable of outputting sound. Any device capable of playing or reading digital content in audio (e.g., music) or data (e.g., text or document) formats is also a possible output device 220.

[0090] A printer is frequently referred to herein as an example of an output device to simplify discussion or as the primary output device 220 in a particular implementation. However, it should be recognized that present invention applies also to other output devices 220 such as fax machines, digital copiers, display screens, monitors, televisions, projectors, voice output devices, among others.

[0091] Rendering content with an output device 220 refers to outputting the content on a specific output medium (e.g., papers, display screens etc). For example, rendering content with a printer generates an image on a substrate; rendering content with a display device generates an image on a screen; and rendering content with an audio output device generates sound.

[0092] A conventional printing system in general includes a raster image processor and a printer engine. A printer engine includes memory buffer, marking engine among other components. The raster image processor converts content into an image form suitable for printing; the memory buffer holds the rasterized image ready

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for printing; and the marking engine transfers colorant to substrate (e.g., paper).

[0093] The raster image processor may be located within an output device (e.g. included in a printer controller 410) or externally implemented (in an information apparatus 200, external controller, servers etc). Raster image processor can be implemented as hardware, software, or a combination (not shown). As an example, raster image processor may be implemented in a software application or device driver in the information apparatus 200. Examples of raster image processing operations include image and graphics interpretation, rasterization, scaling, segmentation, color space transformation, image enhancement, color correction, halftoning, compression etc.

[0094] Fig. 4A illustrates a block diagram of one conventional printing system or printer 400A that includes a printer controller 410 and a printer engine 420A. The printer controller 410 includes an interpreter 402 and a raster image processor 406, and the printer engine 420 includes memory buffer 424A and a marking engine 426A.

[0095] Marking engine may use any of a variety of different technologies to transfer a rasterized image to paper or other media or, in other words, to transfer colorant to a substrate. The different marking or printing technologies that may be used include both impact and non-impact printing. Examples of impact printing may include dot matrix, teletype, daisywheel, etc. Non-impact printing technologies may include inkjet, laser, electrostatic, thermal, dye sublimation, etc.

[0096] The marking engine 426 and memory buffer 424 of a printer form its printer engine 420, which may also include additional circuitry and components, such as firmware, software or chips or chipsets for decoding and signal conversion, etc. Input to a printer engine 420 is usually a final rasterized printer-engine print data generated by a raster image processor 406. Such input is usually device dependent and printer or printer engine specific. The printer engine 420 may take this device dependent input and generate or render output pages (e.g. with ink on a substrate).

[0097] When a raster image processor is located inside an output device 220, it is usually included in a printer controller 410 (as shown in Fig. 4A). A printer controller 410 may interpret, rasterize, and convert input print data in the form of a page description language (e.g., PostScript, PCL), markup language

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(e.g., XML, HTML) or other special document format or language (e.g. PDF, EMF) into printer-engine print data which is a final format, language or instruction that printer engine 420A can understand.

[0098] Print data sent to a printer with printer controller 410 is usually in a form (e.g. postscript) that requires further interpretation, processing or conversion. A printer controller 410 receives the print data, interprets, process, and converts the print data into a form that can be understood by the printer engine 420A. Regardless of the type of print data, conventionally, a user may need a device-specific driver in his or her information apparatus 200 in order to output the proper language, format, or file that can be accepted by a specific printer or output device 220.

[0099] Fig. 4B illustrates another conventional output device 400B. Output device 400B may be a printing device, a display device, a projection device, or a sound device. In the case that the output device is a printing device or a printer, the printer with reference to Fig. 4B does not include a printer controller 410. As an example, printer 400B may be a low-cost printer such as a desktop inkjet printer. RIP operations in this example may be implemented in a software application or in a device driver included in an information apparatus 200. The information apparatus 200 generates device dependent output data (or print data in case of a printer) by rasterizing and converting a digital document into output data (e.g. into a compressed CMKY data with one or more bits per pixel) that can be understood by an output engine (or printer engine in case of a printer) 420B.

[0100] Regardless of type or sophistication level, different output device 220 conventionally needs different printer drivers or output management applications in an information apparatus 200 to provide output capability. Some mobile devices with limited memory and processing power may have difficulty storing multiple device drivers or perform computational intensive RIP operations. It may also be infeasible to install a new device dependent or specific printer driver each time there is a need to print to a new printer. To overcome these difficulties, present invention provides several improvements to output device 220 or output system 250 as described in detail next.

[0101] In present invention, output device 220 may include an output controller 230 to help managing communication and negotiation processes with an information apparatus 200 and to

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process output data. Output controller 230 may include dedicated hardware or software or combination of both for at least one output device 220. Output controller 230 may be internally installed, or externally connected to one or more output devices 220. The output controller 230 is sometimes referred to as a print server or output server.

[0102] Fig 5A and 5B illustrate two exemplary internal implementations of the output controller 230 of present invention. Fig 5A illustrates the implementation of an output controller 230 inside a conventional printer with reference to Fig. 4A, which includes a conventional printer controller 410(5A). The output controller 230(5A) includes an interpreter 510A component for decoding the intermediate output data of present invention; and a converter component 530A for converting one or more decoded output images into a printer-controller print data that is suitable for input to the printer controller 410(5A). An optional image processing component 520A may be included in the output controller 230(5A).

[0103] Fig 5B illustrates the implementation of an output controller 230 included internally in a conventional output device 220 with reference to Fig. 4B, which does not include a printer controller. The output controller 230(5B) includes an interpreter 510B component for decoding the intermediate output data of present invention; an image processor 520B component for performing one or more image processing operations such as color space conversion, color matching and digital halftoning; and an optional encoder 530B component to conform the processed output images into an output-engine output data that is suitable for input to the output engine 420B if the result of the image processing is not already in required form suitable for the output engine 420B.

[0104] In one implementation, output device 220 may include a communication unit 550 or adapter to interface with information apparatus 200. Output device 220 may sometimes include more than one communication unit 550 in order to support different interfaces, protocols, or communication standards with different devices. For example, output device 220 may communicate with a first information apparatus 200 through a Bluetooth interface while communicating with a second information apparatus 200 through a parallel interface. Examples of hardware components of a wireless communication unit are described in greater detail below with reference to Figs. 8A and 8B.

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[0105] In one embodiment, output controller 230 does not include a communication unit, but rather utilizes or manages a communication unit residing in the associated output device 220 such as the illustration in Fig 5. In another embodiment, output controller 230 may include or provide a communication unit to output device 220 as shown in Fig. 6. For example, an output controller 230 with a wireless communication unit may be installed internally or connected externally to a legacy printer to provide it with wireless communication capability that was previously lacking.

[0106] Fig. 6 includes three functional block diagrams illustrating the hardware/software components of output controller 230 in three different implementations. Each components of an output controller 230 may include software, hardware, or combination. For example, an output controller 230 may include components using one or more or combinations of an application-specific integrated circuit (ASIC), a digital signal processor (DSP), a field programmable gate array (FPGA), firmware, system on a chip, and various communication chip sets. Output controller 230 may also contain embedded processors 670 A with software components or embedded application software to implement its feature sets and functionalities.

[0107] Output controller 230 may contain an embedded operating system 680. With an operating system, some or all functionalities and feature sets of the output controller 230 may be provided by application software managed by the operating system. Additional application software may be installed or upgraded to newer versions in order to, for example, provide additional functionalities or bug fixes. Fig. 6A and Fig 6C illustrates examples of implementation with an operating system 680 while Fig. 6B illustrates an example without the operating system 680 or the optional embedded processor 670.

[0108] Output controller 230 typically includes a memory unit 640, or may share a memory unit with, for example, printer controller 410. The memory unit and storage unit, such as ROM, RAM, flash memory and disk drive among others, may provide persistent or volatile storage. The memory unit or storage unit may store output device profiles, objects, codes, instructions or data (collectively referred to as software components) that implement the functionalities of the output controller 230. Part of the software components (e.g., output device profile) may be

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uploaded to information apparatus 200 during or before a data output operation.

[0109] An output controller 230 may include a processor component 670A and 670C, a memory component 650, an optional storage component 640, and an optional operating system component 680. Fig. 6 shows one architecture or implementation where the memory 650, storage 640, processor 670, and operating system 680 components, if exist, can be share or accessed by other operational components in the output controller 230 such as the interpreter 610 and image processor 650. Fig 6 shows two communication units 660A and 660B included in the output controller 230; however, the output controller 230 of present invention may include any number of communication units 660. It is also possible that the output controller does not contain any communication unit but rather utilizes the communication unit of an output device.

[0110] The output controller 230 may be connected externally to an output device 220 or integrated internally into the output device 220. Fig 5A and 5B illustrate implementations of output controller 230 inside an output device 220. The output controller 230, however, may also be implemented as an external box or station that is wired or wirelessly connected to an output device 220. An output controller 230 implemented as an external box or station to an output device 220 may contain its own user interface. One example of such an implementation is a print server connected to an output device 220 in an output system 250. Another configuration and implementation is to integrate or combine the functionalities of an output controller 230 with an existing printer controller 410 (referred to as "combined controller") if the output device 220 is a printer as shown with reference to Fig. 7C or 7F. A combined controller can also be internally integrated or externally connected to output device 220, and include functionalities of both printer controller 410 (e.g., input interpretation and or raster image processing) and output controller 230 of present invention. One advantage of this configuration is that the functionalities or components of output controller 230 and printer controller 410 may share the same resources, such as processing unit, memory unit, etc. Fig 6C illustrates an example of a combined controller implementation or output controller 230 where the printer controller 410C, interpreter 610C and converter 630C shares the use of the processor 670C, memory 650C and storage 640C, managed by an operating system 680C. Various exemplary implementations and configurations of an output controller 230 with respect to an

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output device 220 or output system 250 are illustrated in further detail with reference to FIG 7.

[0111] Other possible implementations of output controller 230 may include, for example, a conventional personal computer (PC), a workstation, and an output server or print server. In these cases, the functionalities of output controller 230 may be implemented using application software installed in a computer (e.g., PC, server, or workstation), with the computer connected with a wired or wireless connection to an output device 220. Using a PC, server, workstation, or other computer to implement the feature sets of output controller 230 with application software is just another possible embodiment of the output controller 230 and in no way departs from the spirit, scope and process of the present invention.

[0112] The difference between output controller 230 and printer controller 410 should be noted. Printer controller 410 and output controller 230 are both controllers and are both dedicated hardware and or software for at least one output device 220. Output controller 230 refers to a controller with feature sets, capabilities, and functionalities of the present invention. A printer controller 410 may contain functions such as interpreting an input page description language, raster image processing, and queuing, among others. An output controller 230 may include part or all of the features of a printer controller 410 in addition to the feature sets, functionalities, capabilities, and processes of present invention.

[0113] Functionalities and components of output controller 230 for the purpose of providing universal data output may include or utilize:

- Components and operations to receive output data from a plurality of information apparatus 200; the output data may include an intermediate output data containing at least one rasterized image related to the data content intended for output.
- Components and operations to interpret and/or decode the intermediate output data.
- Components and operations to process the intermediate output data. Such components and operations may include image processing functions such as scaling, segmentation, color correction, color management, GCR, image enhancement, decompression, decryption, and or halftoning among others.

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• Components and operations to generate an output-engine output data, the output-engine output data being in an output data format acceptable for input to an output engine.

• Components and operations to send the output-engine output data to the output engine.

[0114] When associated with an output device 220 that includes a printer controller 410, the output controller of present invention may further include or utilize:

• Components and operations to convert the intermediate output data into a printer-controller print data (e.g. a PDL such as PostScript and PCL), the printer-controller print data being in a format acceptable to a printer controller.

• Components and operations to send printer-controller print data to one or more printer controllers.

[0115] In addition to the above components and functionalities, output controller 230 may further include one or more of the following:

• Components and operations to communicate with one or more information apparatus 200 through a wired or wireless interface.

• Components and operations to communicate and or manage a communication unit included in the output controller 230 or output device 220.

• Components and operations to store at least part of an output device profile (a printer profile in case of a printer) in a memory component.

• Components and operations to respond to service request from an information apparatus 200 by transmitting at least part of an output device profile to the information apparatus requesting service. The output controller 230 may transmit the output device profiles or object in one or multiple sessions.

• Components and operations to broadcast or advertise the services provided by a host output device 220 to one or more information apparatus 200 that may request such services.

• Components and operations to implement payment processing and management functions by, for example, calculating and processing payments according to the services requested or rendered to a client (information apparatus 200).

• Components and operations to provide a user interface such as display screen, touch button, soft key, etc.

• Components and operations to implement job management functions such as queuing and spooling among others.

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• Components and operations to implement security or authentication procedures. For example, the output controller 230 may store in its memory component (or shared memory component) an access control list, which specifies what device or user may obtain service from its host (or connected) output device 220. Therefore, an authorized information apparatus 200 may gain access after confirming with the control list.

[0116] When output controller 230 is implemented as firmware, or an embedded application, the configuration and management of the functionalities of output controller 230 may be optionally accomplished by, for example, using controller management software in a host computer. A host computer may be a desktop personal computer (PC), workstation, or server. The host computer may be connected locally or through a network to the output device 220 or the controller 230. Communication between the host computer and the output controller 230 can be accomplished through wired or wireless communication. The management application software in the host computer can manage the settings, configurations, and feature sets of the output controller 230. Furthermore, host computer's configuration application may download and or install application software, software components and or data to the output controller 230 for the purpose of upgrading, updating, and or modifying the features and capabilities of the output controller 230.

[0117] Output device 220 in one implementation includes or is connected to output controller 230 described above. Therefore, functionalities and feature sets provided by output controller 230 are automatically included in the functionalities of output device 220. The output device 220 may, however, implement or include other controllers and/or applications that provide at least partially the features and functionalities of the output controller 230.

[0118] Therefore, the output device 220 may include some or all of the following functionalities:

• Components and operations to receive multiple service requests or queries (e.g., a service request, a data query, an object or component query etc.) from a plurality of information apparatus 200 and properly respond to them by returning components, which may contain data, software, instructions and/or objects.

• Components and operations to receive output data from a plurality of information apparatus 200; the output data may include an intermediate output data containing one or more rasterized image related to the content intended for output.

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• Components and operations to interpret and/or decoding the intermediate output data.

• Components and operations to process and/or convert the intermediate output data into a form (e.g. output-engine print data) suitable for rendering at an output engine associated with the output device.

• Components and operations to render a representation or an image related to the content onto an output medium (e.g. substrate or a display screen).

[0119] An output device 220 may further comprise optionally one or more of the following functionalities:

• Components and operations for establishing and managing a communication link with an information apparatus 200 requesting service; the communication link may include wired or wireless communication.

• Components and operations for storing at least part of an output device profile (e.g. printer profile) in a memory component.

• Components and operations to provide at least part of an output device profile (e.g., printer profile in case of a printer) to one or more information apparatus 200 requesting service. The output device 220 may transmit the output device profile in one or multiple sessions.

• Components and operations to advertise or broadcast services provided or available to one or more information apparatus 200.

• Components and operations to implement payment processing and management functions by, for example, calculating and processing payments according to the services requested by or rendered to a client (information apparatus 200).

• Components and operations to implement job management functionalities such as queuing and spooling among others.

• Components and operations to provide a user interface such as display screen touch button, soft key, power switch, etc.

• Components and operations to implement security or authentication procedures. For example, the output device 220 may store in its memory component (or a shared memory component) an access control list, which specifies what device or user may obtain service from it. Therefore, an authorized information apparatus 200 may gain access after confirming with the control list.

[0120] Figs. 7A - 7F illustrate various alternative configurations and implementations of output controller 230 with respect to an output device 230. Printer is sometimes used as an

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exemplary output device 230 to demonstrate the various configurations. It should be understood, however, the output device 230 of present invention is not limited to printers.

[0121] As described with reference to Fig 4., a printer may or may not contain a printer controller 410. Printer 400A that includes a printer controller 410 typically has higher speed and is more expensive than printer 400B which does not include a printer controller 410.

[0122] Fig. 7A shows that output controller 230 may be cascaded externally to one or more printers (only one shown). Information apparatus 200 communicates with output controller 230A, which then communicates with output device 220 such as a printer 220A. The communication link between the output controller 230A and the printer 220A may be a wired link or a wireless link, as described above. Fig 6A and 6B illustrates two examples of functional component design of the output controller that can implement the configuration illustrated in Fig 7A. The Image processor 620 in this implementation is optional.

[0123] Fig. 7B shows another implementation in which output controller 230B is installed as one or more circuit boards or cards internally inside printer 220B. The output controller 230B may co-exist with printer controller 410 and other components of the printer 220B. One example of this implementation is to connect output controller 230B sequentially with the printer controller 310. Fig 5A shows as an example of an implementation.

[0124] Fig. 7C shows another implementation in which the functionalities of output controller 230 and printer controller 410 are combined into a single controller (referred to as "combined controller") 230C. In this implementation, it is possible to reduce the cost of material when compared to implementing two separate controllers as shown in Fig 7B. As an example, the combined controller 230C may share the same processors, memories, and storages to run the applications and functionalities of the two types of controllers and therefore, may have lower component costs when compared to providing two separate controllers. Fig. 6C illustrates an example of a combined controller functional component implementation.

[0125] Some printers do not include a raster image processor or printer controller 410, as illustrated in Fig. 4B. An example of this type of printer is a lower cost desktop inkjet printer. Input to an inkjet printer may consist of a compressed CMYK data (proprietary or published) with one or more bits per pixel input.

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To output to a printer that does not include a printer controller, a device specific software application or a printer driver is typically required in an information apparatus 200 to perform raster image processing operations. Accordingly, output controller 230 can be implemented into a variety of output devices 220 and/or output systems 250 including printers that do not have printer controllers for performing raster image processing operations.

[0126] Fig. 7D and Fig 7E illustrate two implementations of output controller 230 in an output device 220 or system 250. The output device 230 or system 250 may include a display device, a projection device, an audio output device or a printing device. In the case when the output device 220D or 220E is a printer, it does not include a printer controller. Fig. 7D illustrates an implementation of an output controller 230D installed as an external component or "box" to output device 220D. For example, the output controller 230 may be implemented as an application in a print server or as a standalone box or station. In this configuration, some or all of raster image processing operations may be implemented in the output controller 230D. Output controller 230D receives intermediate output data from an information apparatus 200 and generates output-engine output data that is acceptable to the output engine included in the output device 220D. The output controller 230D may send the output data to the output device 220D through a wired or wireless communication link or connection. Fig 6A and 6B illustrates two example of functional component design of the output controller that can implement the configurations for both Fig. 7D and 7E.

[0127] Fig. 7E shows a fifth implementation of output controller 230E in which the output controller 230E is incorporated within output device 220E as one or more circuit boards or cards and may contain software and applications running on an embedded processor. As with output device 220D (Fig. 7D), output device 220E does not include a printer controller 410. Accordingly, the output controller 230E implements the functionalities and capabilities of present invention that may include part of or complete raster imaging processing operation.

[0128] Fig. 7F shows a sixth implementation, an external combined controller 230F that integrates the functionalities of a printer controller 310 and an output controller into a single external combined controller component or "box" 230F. The two controller functions may share a common processor as well as a common memory space to run applications of the two types of

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controllers. Under this configuration, either information apparatus 200 or the combined controller 230F could perform or share at least part of raster image processing functionality. Fig. 6C shows an example of functional components of a combined controller 230F.

[0129] Another implementation of the combined controller 230F shown in Fig 7F is to use an external computing device (PC, workstation, or server) running one or more applications that include the functionality of output controller 230 and printer controller 410.

[0130] The above are examples of different implementations and configurations of output controller 230. Other implementations are also possible. For example, partial functionalities of output controller 230 may be implemented in an external box or station while the remaining functionalities may reside inside an output device 220 as a separate board or integrated with a printer controller 410. As another example, the functionalities of output controller 230 may be implemented into a plurality of external boxes or stations connected to the same output device 220. As a further example, the same output controller 230 may be connected to service a plurality of output devices 220

[0131] Figs. 8A and 8B are block diagrams illustrating two possible configurations of hardware/software components of wireless communication units. These wireless communication units can be implemented and included in information apparatus 200, in output controller 230 and in output device 220. Referring to Fig. 8A, a radio adapter 800 may be implemented to enable data/voice transmission among devices (e.g., information apparatus 200 and output device 220) through radio links. An RF transceiver 814 coupled with antenna 816 is used to receive and transmit radio frequency signals. The RF transceiver 814 also converts radio signals into and from electronic signals. The RF transceiver 814 is connected to an RF link controller 810 by an interface 812. The interface 812 may perform functions such as analog-to-digital conversion, digital-to-analog conversion, modulation, demodulation, compression, decompression, encoding, decoding, and other data or format conversion functions.

[0132] RF link controller 810 implements real-time lower layer (e.g., physical layer) protocol processing that enables the hosts (e.g., information apparatus 200, output controller 230, output device 220, etc.) to communicate over a radio link. Functions performed by the link controller 810 may include, without limitation, error detection/correction, power control, data packet

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processing, data encryption/decryption and other data processing functions.

[0133] A variety of radio links may be utilized. A group of competing technologies operating in the 2.4 GHz unlicensed frequency band is of particular interest. This group currently includes Bluetooth, Home radio frequency (Home RF) and implementations based on IEEE 802.11 standard. Each of these technologies has a different set of protocols and they all provide solutions for wireless local area networks (LANs). Interference among these technologies could limit deployment of these protocols simultaneously. It is anticipated that new local area wireless technologies may emerge or that the existing ones may converge. Nevertheless, all these existing and future wireless technologies may be implemented in the present invention without limitation, and therefore, in no way depart from the scope of present invention.

[0134] Among the currently available wireless technologies, Bluetooth may be advantageous because it requires relatively lower power consumption and Bluetooth-enabled devices operate in piconets, in which several devices are connected in a point-to-multipoint system. Referring to Fig. 8B, one or more infrared (IR) adapters 820 may be implemented to enable data transmission among devices through infrared transmission. The IR adapters 820 may be conveniently implemented in accordance with the Infrared Data Association (IrDA) standards and specifications. In general, the IrDA standard is used to provide wireless connectivity technologies for devices that would normally use cables for connection. The IrDA standard is a point-to-point (vs. point-to-multipoint as in Bluetooth), narrow angle, ad-hoc data transmission standard.

[0135] Configuration of infrared adapters 820 may vary depending on the intended rate of data transfer. Fig. 8B illustrates one embodiment of infrared adapter 820. Transceiver 826 receives/emits IR signals and converts IR signals to/from electrical signals. A UART (universal asynchronous receiver/transmitter) 822 performs the function of serialization/deserialization, converting serial data stream to/from data bytes. The UART 822 is connected to the IR transceiver 826 by encoder/decoder (ENDEC) 824. This configuration is generally suitable for transferring data at relatively low rate. Other components (e.g., packet framer, phase-locked loop) may be needed for higher data transfer rates.

[0136] Figs. 8A and 8B illustrate exemplary hardware configurations of wireless communication units. Such hardware

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components may be included in devices (e.g., information apparatus 200, output controller 230, output device 220, etc.) to support various wireless communications standards. Wired links, however, such as parallel interface, USB, Firewire interface, Ethernet and token ring networks may also be implemented in the present invention by using appropriate adapters and configurations.

[0137] FIG 9 is a logic flow diagram of an exemplary raster imaging process (RIP) 902 that can implement the universal output method of present invention. Content (e.g. digital document) 900 may be obtained and/or generated by an application running in an information apparatus 200. For example, a document browsing application may allow a user to download and or open digital document 900 stored locally or in a network node. As another example, a document creating or editing application may allow a user to create or edit digital documents in his/her information apparatus 200.

[0138] A client application 210 in the information apparatus may be in the form of a device driver, invoked by other applications residing in the information apparatus 200 to provide output service. Alternatively, the client application 210 of present invention may be an application that includes data output and management component, in addition of other functionalities such as content acquisitions, viewing, browsing, and or editing etc. For example, a client application 210 in an information apparatus 200 may itself include components and functions for a user to download, view and or edit digital document 900 in addition of the output management function described herein.

[0139] Raster image process method 902 allows an information apparatus 200 such as a mobile device to pervasively and conveniently output content (e.g. a digital document) to an output device 220 or system 250 that includes an output controller 230. A client application 210 in an information apparatus 200 may perform part of raster image processing operations (e.g. rasterization operation). Other operations of raster image processing such as halftoning can be completed by the output device 220 or by the output controller 230. In conventional data output methods, raster image processing is either implemented entirely in an information apparatus (e.g. a printer that does not include a printer controller with reference to Fig. 1A) or in an output device (e.g. a printer that includes a printer controller with reference to Fig. 1B). Present invention provides a more balanced approach where raster image process operations are shared between an information

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apparatus 200 and an output device 220 or system 250. For example, content 600 may be processed (e.g. raster image processed) by different components or parts of an overall output system from a client application 210 to an output controller 230 before being sent to an output engine or a printer engine for final output in step 960. Because the raster image processing operations are not completely implemented in the information apparatus 200, there is less processing demand on the information apparatus 200. Therefore, present RIP process may enable additional mobile devices with less memory and processing capability to have data output capability.

[0140] In step 910, rasterization operation, a content (e.g. digital document), which may include text, graphics, and image objects, is conformed or rasterized to image form according to one or more rasterization parameters such as output size, bit depth, color space, resolution, number of color channels etc. During the rasterization operation, text and vector graphics information in the content are rasterized or converted into image or bitmap information according to a given set of rasterization parameters. Image information in the content or digital document may be scaled and or interpolated to fit a particular output size, resolution and bit depth etc. The rasterization parameters are in general device dependent, and therefore may vary according to different requirements and attributes of an output device 220 and its output engine. There are many ways to obtain device dependent rasterization parameters, as described in more detail below with reference to Fig 12A. Device dependent rasterization parameters, in one example, may be obtained from an output device profile stored in an information apparatus 200, an output device 220 or an output controller 230.

[0141] In an alternative implementation, rasterization parameters may be predetermined by a standard or specification. In this implementation, in step 910 the content 900 is rasterized to fit or match this predefined or standard rasterization parameters. Therefore, the rasterized output image becomes device independent. One advantage of being device independent is that the rasterized output image is acceptable with controllers, devices and/or output devices implemented or created with the knowledge of such standard or specification. A rasterized image with predefined or standardized attributes is usually more portable. For example, both the client application 210 and output device 220 or its output controller 230 may be preprogrammed to receive, interpret, and or

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output raster images based on a predefined standard and/or specification.

[0142] Occasionally, a predefined standard or specification for rasterization parameters may require change or update. One possible implementation for providing an easy update or upgrade is to store information and related rasterization parameters in a file or a profile instead of hard coding these parameters into programs, components or applications. Client application 210, output controller 230, and/or the output device 220 can read a file or a profile to obtain information related to rasterization parameters. To upgrade or update the standard specification or defaults requires only replacing or editing the file or the profile instead of replacing a software application or component such as the client application 210.

[0143] In step 920 the rasterized content in image form is encoded into an intermediate output data. The intermediate output data, which describes the output content, may include image information, instructions, descriptions, and data (e.g. color profile). The rasterized output image may require further processing including one or more of compression, encoding, encryption, smoothing, image enhancement, segmentation, color correction among others before being stored into the intermediate output data. The output image in the intermediate output data may be encoded in any image format and with any compression technique such as JPEG, BMP, TIFF, JBIG etc. In one preferred embodiment, a mixed raster content (MRC) format and its related encoding and/or compression methods are used to generate the output image. The advantages of using MRC over other image formats and techniques may include, for example, better compression ratio, better data information retention, smaller file size, and or relatively better image quality among others.

[0144] In step 930, the intermediate output data is transmitted to the output device 220 or output system 250 for further processing and final output. The transmission of the intermediate output data may be accomplished through wireless or wired communication links between the information apparatus 200 and the output device 220 and can be accomplished through one or multiple sessions.

[0145] In step 940, the output device 220 or output system 250 receives the transmitted intermediate output data. The output device 220 or output system 250 may include an output controller 230 to assist communicating with the information apparatus 200

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and/or processing the intermediate output data. Output controller 230 may have a variety of configurations and implementations with respect to output device 220 as shown in Fig. 7A-7F. Interpretation process 940 may include one or more of parsing, decoding, decompression, decryption, image space conversion among other operations if the received intermediate output data requires such processing. An output image is decoded or retrieved from the intermediate output data and may be temporarily stored in a buffer or memory included in the output device/output system (220/250) or output controller 230 for further processing.

[0146] If the intermediate output data includes components with MRC format or encoding techniques, it may contain additional segmented information (e.g. foreground and background), which can be used to enhance image quality. For example, different techniques or algorithms in scaling, color correction, color matching, image enhancement, anti-aliasing and or digital halftoning among others may be applied to different segments or layers of the image information to improve output quality or maximize retention or recovery of image information. Multiple layers may later be combined or mapped into a single layer. These image processing and conversion components and/or operations can be included in the output controller 230 of present invention.

[0147] In step 950, the decoded or retrieved output image from the intermediate output data may require further processing or conversion. This may include one or more of scaling, segmentation, interpolation, color correction, GCR, black generation, color matching, color space transformation, anti-aliasing, image enhancement, image smoothing and or digital halftoning operations among others.

[0148] In an embodiment where the output device 220 does not include a printer controller, an output controller 230 or an output device 220 that includes output controller, after performing the remaining portion of RIP operations (e.g. color space conversion and halftoning) on the output image, may further convert the output data in step 950 into a form that is acceptable for input to a printer engine for rendering.

[0149] In an alternative embodiment where the output device 220 or the output system 250 includes a conventional printer controller, the output controller may simply decodes and or converts the intermediate output data (print data in this example) into format or language acceptable to the printer controller. For example, a printer controller may require as input a page

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description language (e.g. PostScript, PCL, PDF, etc.), a markup language (HTML, XML etc) or other graphics or document format. In these cases, the output controller 230 may interpret, decompress and convert the intermediate print data into an output image that has optimal output resolution, bit depth, color space, and output size related to the printer controller input requirements. The output image is then encoded or embedded into a printer-controller print data (e.g. a page description language) and sent to the printer controller. A printer-controller print data is a print data that is acceptable or compatible for input to the printer controller. After the printer controller receives the printer-controller print data, the printer controller may further perform operations such as parsing, rasterization, scaling, color correction, image enhancement, halftoning etc on the output image and generate an appropriate printer-engine print data suitable for input to the printer engine.

[0150] In step 960, the output-engine output data or printer-engine print data generated by the output controller 230 or the printer controller in step 950 is sent to the output engine or printer engine of the output device for final output.

[0151] Fig. 10 illustrates a flow diagram of a universal data output process of the present invention that includes the raster image processing illustrated with reference to Fig. 9. A universal data output process allows an information apparatus 200 to pervasively output content or digital document to an output device. The data output process may include or utilize:

- A user interface component and operation where a user initiates an output process and provides an indication of the selected output content (e.g. digital document) for output.
- A client application component or operation that processes the content indicated for output, and generates an intermediate output data. The intermediate output data may include at least partly a raster output image description related to the content.
- An information apparatus component or operation that transmits the intermediate output data to one or more selected output device 220.
- An output device component (e.g. output controller) or operation that interprets the intermediate output data and may further process or convert the output data into a form more acceptable to an output engine for rendering of the content.

[0152] With reference to Fig. 10, a user in step 1000 may initiate the universal output method or process 1002. Typically, a

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user initiates the output process by invoking a client application 210 in his/her information apparatus 200. The client application 210 may be launched as an independent application or it may be launched from other applications 205 (such as from a document browsing, creating or editing application) or as part of or component of or a feature of another application 205 residing in the same information apparatus 200. When launched from another application 205, such as the case when the client application is a device driver or helper application, the client application 210 may obtain information, such as the content (e.g. digital document) from that other application 205. This can be accomplished, for example, by one or combinations of messages or facilitated through an operating system or a particular object or component model etc.

[0153] During output process 1002, a user may need to select one or more output devices 220 for output service. An optional discovery process step 1020 may be implemented to help the user select an output device 220. During the discovery process step 1020, a user's information apparatus 200 may (1) search for available output devices 220; (2) provide the user with a list of available output devices 220; and (3) provide means for the user to choose one or more output devices 220 to take the output job. An example of a discovery process 1020 is described below in greater detail with reference to Fig. 11.

[0154] The optional discovery process 1020 may sometimes be unnecessary. For example, a user may skip the discovery process 1020 if he or she already knows the output device (e.g., printer) 220 to which the output is to be directed. In this case, the user may simply connect the information apparatus 200 to that output device 220 by wired connections or directly point to that output device 220 in a close proximity such as in the case of infrared connectivity. As another example, a user may pre-select or set the output device or devices 220 that are used frequently as preferred defaults. As a result, the discovery process 1020 may be partially or completely skipped if the default output device 220 or printer is found to be available.

[0155] In stage 1030, the client application may interact with output device 220, the user, and/or other applications 205 residing in the same information apparatus 200 to (1) obtain necessary output device profile and/or user preferences, (2) perform functions or part of raster image processing operations such as rasterization, scaling and color correction, and/or (3) convert or encode at least partially the rasterized content (e.g. digital

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document) into an intermediate output data. The processing and generation of the intermediate output data may reflect in part a relationship to an output device profile and/or user preferences obtained, if any. The intermediate output data generated by the client application 210 is then transmitted through wired or wireless local communication link(s) 240 to the output controller 230 included or associated with the selected output device 220 or output system 250. An exemplary client application process is described in greater detail with reference to FIG 12.

[0156] In step 1040, the output controller 230 of present invention receives the intermediate output data. In the case where the selected output device 230 does not include a printer controller, the output controller 230 of present invention may further perform processing functions such as parsing, interpreting, decompressing, decoding, color correction, image enhancement, GCR, black generation and halftoning among others. In addition, the output controller 230 may further convert or conform the intermediate output data into a form or format suitable for the output engine (e.g. printer engine in the case of a printer). The generated output-engine output data from the output controller is therefore, in general, device dependent and acceptable for final output with the output engine (or the printer engine in case of a printer) included in the selected output device 220 or output system 250.

[0157] In the case where the selected output device 220 is a printer, and when the printer includes or is connected to a printer controller, the output controller 230 may generate the proper language or input format required to interface with the printer controller (referred to as printer-controller print data). The printer controller may for example require a specific input such as a page description language (PDL), markup language, or a special image or graphics format. In these cases, the output controller 230 in step 1040 may interpret and decode the intermediate output data, and then convert the intermediate output data into the required printer-controller print data (e.g. PDL such as PostScript or PCL). The printer-controller print data generated by the output controller is then sent to the printer controller for further processing. The printer controller may perform interpretation and raster image processing operations among other operations. After processing, the printer controller generates a printer-engine print data suitable for rendering at the printer engine.

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[0158] In either case, the output controller 230 or printer controller generates an output-engine output data that is suitable for sending to or interfacing with the output engine or the printer engine included in the output device for rendering. The output data may be temporarily buffered in components of the output device 220. An implementation of the output device process 1040 is described in greater detail with reference to FIG 13.

[0159] The steps included in the universal pervasive output process 1002 may proceed automatically when a user requests output service. Alternatively, a user may be provided with options to proceed, cancel, or input information at each and every step. For example, a user may cancel the output service at any time by, for example, indicating a cancellation signal or command or by terminating the client application 210 or by shutting down the information apparatus 200 etc.

[0160] Fig. 11 is a flow diagram of an example of a discovery process 720, which may be an optional step to help a user locate one or more output devices 220 for an output job. The discovery process 1020 may, however, be skipped partially or entirely. Implementation of discovery process 1020 may require compatible hardware and software components residing in both the information apparatus 200 and the output device 220. The information apparatus 200 may utilize the client application 210 or other application 205 in this process. The discovery process 1020 may include:

- An information apparatus 200 communicating with available output devices 220 to obtain information and attributes relating to the output device 220 and or its services such as output device capability, feature sets, service availability, quality of service, condition.
- An Information apparatus 200 provides the user information on each available and or compatible output devices 220.
- A user selects or the client application 210 (automatically or not) selects one or more output devices 220 for the output service from the available or compatible output devices 220.

[0161] Various protocols and or standards may be used during discovery process 1020. Wireless communication protocols are preferred. Wired communication, on the other hand, may also be implemented. Examples of applicable protocols or standards may include, without limitation, Bluetooth, HAVi, Jini, Salutation, Service Location Protocol, and Universal Plug-and-play among others. Both standard and proprietary protocols or combination may be implemented in the discovery process 1020. However, these

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different protocols, standards, or combination shall not depart from the spirit and scope of present invention.

[0162] In one implementation an application (referred here for simplicity of discussion as a "communication manager," not shown) residing in the information apparatus 200 helps communicate with output device 220 and manages service requests and the discovery process 1020. The communication manager may be a part of or a feature of the client application 210. Alternatively or in combination, the communication manager may also be a separate application. When the communication manager is a separate application, the client application 210 may have the ability to communicate, manage or access functionalities of the communication manager.

[0163] The discovery process 1020 may be initiated manually by a user or automatically by a communication manager when the user requests an output service with information apparatus 200.

[0164] In the optional step 1100, a user may specify searching or matching criteria. For example, a user may indicate to search for color printers and or printers that provide free service. The user may manually specify such criteria each time for the discovery process 1020. Alternatively or in combination, a user may set default preferences that can be applied to a plurality of discovery processes 1020. Sometimes, however, no searching criteria are required: the information apparatus 200 may simply search for all available output devices 220 that can provide output service.

[0165] In step 1101, information apparatus 200 searches for available output devices 220. The searching process may be implemented by, for example, an information apparatus 200 (e.g. with the assistance of a communication manager) multi-casting or broadcasting or advertising its service requests and waiting for available output devices 220 to respond. Alternatively or in combination, an information apparatus 200 may "listen to" service broadcasts from one or more output devices 220 and then identify the one or more output devices 220 that are needed or acceptable. It is also possible that multiple output devices 220 of the same network (e.g., LAN) register their services with a control point (not shown). A control point is a computing system (e.g., a server) that maintains records on all service devices within the same network. An information apparatus 200 may contact the control point and search or query for the needed services.

[0166] In step 1102, if no available output device 220 is found, the communication manager or the client application 210 may

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provide the user with alternatives 1104. Such alternatives may include, for example, aborting the discovery process 1020, trying discovery process 1020 again, temporarily halting the discovery process 1020, or being notified when an available output device 220 is found. As an example, the discovery process 1020 may not detect any available output device 220 in the current wired/wireless network. The specified searching criteria (if any) are then saved or registered in the communication manager. When the user enters a new network having available output devices 220, or when new compatible output devices 220 are added to the current network, or when an output device 220 becomes available for any reason, the communication manager may notify the user of such availability.

[0167] In step 1106, if available output devices 220 are discovered, the communication manager may obtain some basic information, or part of or the entire output device profile, from each discovered output device 220. Examples of such information may include, but not limited to, device identity, service charge, subscription, service feature, device capability, operating instructions, etc. Such information is preferably provided to the user through the user interface (e.g., display screen, speaker, etc.) of information apparatus 200.

[0168] In step 1108, the user may select one or more output devices 220 based on information provided, if any, to take the output job. If the user is not satisfied with any of the available output device 220, the user may decline the service. In this case, the user may be provided with alternatives such as to try again in step 1110 with some changes made to the searching criteria. The user may choose to terminate the service request at any time. In step 1112, with one or more output devices 220 selected or determined, the communication link between information apparatus 200 and the selected output device or devices 220 may be "locked". Other output devices 220 that are not selected may be dropped. The output process 1020 may then proceed to the client application process of step 1030 of Fig. 10.

[0169] Fig. 12A is a flow diagram of an exemplary client application process with reference to step 1030 of Fig. 10. A client application process 1202 for universal output may include or utilize:

- A client application 210 that obtains content (e.g. digital document) intended for output.
- A client application 210 that obtains output device parameters (e.g. rasterization parameters, output job parameters).

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One example of implementation is to obtain the output device parameters from an output device profile (e.g. printer profile), which includes device dependent parameters. Such profile may be stored in an output controller 230, output device 220 or information apparatus 200.

• A client application 210 that may optionally obtain user preferences through (1) user's input (automatic or manual) or selections or (2) based on preset preference or pre-defined defaults or (3) combination of the above.

• A client application 210 that rasterizes at least part of the content intended for output (e.g. a digital document) according to one or more rasterization parameters obtained from previous steps such as through output device profile, user selection, predefined user preferences, predefined default or standard etc.

• A client application 210 that generates an intermediate output data containing at least part of the rasterized image related at least partly to the content intended for output.

• A client application that transmits the intermediate output data to an output device 220 or output controller 230 for further processing and or final output.

[0170] A client application 210 may obtain content (e.g. digital document) 900 or a pointer or reference to the content in many ways. In a preferred embodiment, the client application 210 is in the form of a device driver or an independent application, and the content or its reference can be obtained by the client application 210 from other applications 205 in the same information apparatus 200. To illustrate an example, a user may first view or download or create a digital document by using a document browsing, viewing and or editing application 205 in his/her information apparatus 200, and then request output service by launching the client application 210 as a device driver or helper application. The client application 210 communicates with the document browsing or editing application to obtain the digital document or reference to the digital document. As another example, the client application 210 is an independent application and it launches another application to help locate and obtain the digital document for output. In this case, a user may first launch the client application 210, and then invoke another application 205(e.g. document editing and or browsing application) residing in the same information apparatus 200 to view or download a digital document. The client application 210 then communicates with the document

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browsing or editing application to obtain the digital document for output.

[0171] In another embodiment, the client application 210 itself provides multiple functionalities or feature sets including the ability for a user to select the content (e.g. digital document) for output. For example, the client application 210 of present invention may provide a GUI where a user can directly input or select the reference or path of a digital document that the user wants to output.

[0172] In order to perform rasterization operation on content (e.g. digital document) 900, the client application 210 in step 1210 needs to obtain device dependent parameters of an output device 220 such as the rasterization parameters. Device dependent parameters may be included in an output device profile. A client application 210 may obtain an output device profile or rasterization parameters in various ways. As an example, an output device profile or rasterization parameters can be obtained with one or combination of the following:

- The client application communicates with an output device 220 to upload output device profile or information related to one or more rasterization parameters.
- The client application 210 obtains the output device profile from a network node (e.g. server).
- A user selects an output device profile stored in the user's information apparatus 200.
- The client application 210 automatically retrieves or uses a default profile, predefined standard values or default values among others.
- The client application 210 obtains output device parameters by calculating, which may include approximation, based at least partly on the information it has obtained from one or combination of an output device 220, a user, default values, and a network node.

[0173] It is important to note that step 1210 is an optional step. In some instance, part of or the entire output device profile or related device dependent information may have been already obtained by the client application 210 during the prior optional discovery process (step 1020 in FIG 10). In this case, step 1210 may be partially or entirely skipped.

[0174] In one implementation, the client application 210 communicates with one or more output devices 220 to upload output device profiles stored in the memory or storage components of those

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one or more output devices 220 or their associated one or more output controllers 230. In some instance, the uploaded output device profile may contain partially or entirely references or pointers to device parameters instead of the device parameters themselves. The actual output device parameters may be stored in a network node or in the information apparatus 200, where they can be retrieved by the client application 210 or by other applications 205 using the references or pointers. It should be noted that a plurality of information apparatuses 200 may request to obtain output device profile or profiles from the same output device 220 at the same time or at least during overlapping periods. The output device 220 or its associated output controller 230 may have components or systems to manage multiple communication links and provide the output device profile or profiles concurrently or in an alternating manner to multiple information apparatuses 200. Alternatively, an output device 220 may provide components or systems to queue the requests from different information apparatuses 200 and serve them in a sequential fashion according to a scheme such as first come first served, quality of service, etc. Multi-user communication and service management capability with or without queuing or spooling functions may be implemented by, for example, the output controller 230 as optional feature sets.

[0175] In another implementation, one or more output device profiles may be stored locally in the information apparatus 200. The client application 210 may provide a GUI where a user can select a profile from a list of pre-stored profiles. As an example, the GUI may provide the user with a list of output device names (e.g. makes and models), each corresponding to an output device profile stored locally. When the user selects an output device 220, the client application 210 can then retrieve the output device profile corresponding to the name selected by the user.

[0176] In certain cases, during a discovery or communication process described earlier, the client application 210 may have already obtained the output device ID, name, or reference or other information in a variety of ways described previously. In this case, the client application 210 may automatically activate or retrieve an output device profile stored in the information apparatus 200 based on the output device ID, name, or reference obtained without user intervention.

[0177] In yet another implementation, the client application 210 may use a set of pre-defined default values stored locally in a user's information apparatus 200. Such defaults can be stored in

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one or more files or tables. The client application 210 may access a file or table to obtain these default values. The client application 210 may also create or calculate certain default values based on the information it has obtained during previous steps (e.g. in optional discovery process, based on partial or incomplete printer profile information obtained, etc). A user may or may not have an opportunity to change or overwrite some or all defaults.

[0178] Finally, if, for any reason, no device dependent information is available, the client application 210 may use standard output and rasterization parameters or pre-defined default parameters. The above illustrates many examples and variations of implementation, these and other possible variations in implementation do not depart from the scope of the present invention.

[0179] In step 1220, the client application 210 may optionally obtain user preferences. In one exemplary implementation, the client application 210 may obtain user preferences with a GUI (graphical user interface). For simplicity, a standard GUI form can be presented to the user independent of the make and model of the output device 220 involved in the output process. Through such an interface, the user may specify some device independent output parameters such as page range, number of cards per page, number of copies, etc. Alternatively or in combination, the client application 210 may also incorporate output device-dependent features and preferences into the GUI presented to the user. The device-dependent portion of the GUI may be supported partly or entirely by information contained in the output device profile obtained through components and processes described in previous steps. To illustrate, device dependent features and capabilities may include print quality, color or grayscale, duplex or single sided, output page size among others.

[0180] It is preferred that some or all components, attributes or fields of user preferences have default values. Part or all default values may be hard-coded in software program in client application 210 or in hardware components. Alternatively, the client application 210 may also access a file to obtain default values, or it may calculate certain default values based on the information it has obtained during previous steps or components (e.g. from an output device profile). A user may or may not have the ability to pre-configure, or change or overwrite some or all defaults. The client application 210 may obtain and use some or all defaults with or without user intervention or knowledge.

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[0181] In step 1230, the client application 210 of present invention performs rasterization operation to conform a content (e.g. a digital document), which may includes objects and information in vector graphics, text, and images, into one or more output images in accordance with the rasterization parameters obtained in previous steps. During rasterization process, text and vector graphics object or information in the content is rasterized or converted into image or bitmap form according to the given set of rasterization parameters. Image information in the content may require scaling and interpolation operations to conform the rasterization parameters. Rasterization process may further include operations such as scaling, interpolation, segmentation, image transformation, image encoding, color space transformation etc. to fit or conform the one or more output images to the given set of rasterization parameters such as target output size, resolution, bit depth, color space and image format etc.

[0182] In step 1240, the client application 210 generates an intermediate output data that includes the rasterized one or more output images. The intermediate output data of the present invention may contain image information, instructions, descriptions, and data such as color profile among others. Creating and generating intermediate output data may further include operations such as compression, encoding, encryption, smoothing, segmentation, scaling and or color correction, among others. The image or images contained in an intermediate output data may be variously encoded and/or implemented with different image formats and/or compression methods (e.g. JPEG, BMP, TIFF, JBIG etc or combination). One preferred implementation is to generate or encode the output image in the intermediate output data with mixed raster content (MRC) description. The use of MRC in the data output process of present invention provides opportunities to improve the compression ratio by applying different compression techniques to segmented elements in the content. In addition, MRC provides opportunities to maintain more original content information during the encoding process of the output image and, therefore, potentially improve output quality.

[0183] In step 1250, the client application 210 transmits intermediate output data to an output device 220 through local communication link 240. The communication link may be implemented with wired or wireless technologies and the transmission may include one or multiple sessions.

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[0184] It should be recognized that FIG 12A illustrates one example of a client application process 1030 in the data output method 1002 of present invention. Other implementations with more or less steps are possible, and several additional optional processes not shown in Fig 12 may also be included in the client application process 1030. Use of these different variations, however, does not result in a departure from the scope of the present invention. As an example, an optional authentication step may be included when the selected output device 220 provides service to a restricted group of users. Various authentication procedures may be added in step 1210 when client application 210 obtains output device profile by communicating with an output device or an output controller. As another example, authentication procedures may also be implemented in step 1250 when the client application transmits intermediate output data to one or more output devices 220 or output controllers 230. A simple authentication may be implemented by, for example, comparing the identity of an information apparatus 200 with an approved control list of identities stored in the output device 220 or output controller 230. Other more complex authentication and encryption schemes may also be used. Information such as user name, password, ID number, signatures, security keys (physical or digital), biometrics, fingerprints, voice among others, may be used separately or in combination as authentication means. Such identification and or authentication information may be manually provided by user or automatically detected by the selected output device or devices 220 or output controller 230. With successful authentication, a user may gain access to all or part of the services provided by the output device 220. The output device profile that the client application 210 obtains may vary according to the type or quality of service requested or determined. If authentication fails, it is possible that a user may be denied partially or completely access to the service. In this case, the user may be provided with alternatives such as selecting another output device 220 or alternative services.

[0185] Another optional process is that a user may be asked to provide payment or deposit or escrow before, during or after output service such as step 1210 or 1250 with reference to Fig. 12. Examples of payment or deposit may include cash, credit card, bankcard, charge card, smart card, electronic cash, among others. The output controller 220 may provide payment calculation or

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transaction processing as optional feature sets of present invention.

[0186] FIG 12B illustrates another exemplary client application output process 1030 with which an information apparatus 200 can pervasively and universally output content to one or more output devices 220 associated with or equipped with an output controller 230 of present invention.

[0187] The process illustrated in FIG 12B is similar to the process described in FIG 12A except that step 1210, obtaining output device profile, is skipped. In this embodiment, the client application 210 utilizes a set of hard-coded, standard or pre-defined output device parameters including rasterization parameters with which the client application 210 can perform rasterization operation and other required image processing functions. Users may be provided with the option of changing these parameters or inputting alternative parameters. Rasterization parameters include output size, output resolution, bit depth, color space, color channels, scale factors etc. These pre-defined parameters typically comply with a specification or a standard. The same specification and standard may also defined or describe at least partly the intermediate output data. Predefined standard parameters can be stored in a file or profile in an information apparatus 200, an output controller 230, and/or in an output device 220 for easy update or upgrade.

[0188] In client output process 1204, since the rasterization parameters are predefined, the client application 210 may not need to upload printer profiles from the selected output device 230. Consequently, no two-way communication between the information apparatus 200 and the output device or devices 220 is necessary in this process 1204 when compared with process 1202 illustrated in Fig. 12A. The client application 210 performs rasterization operation 1225 based on standard and/or predefined parameters and generates a rasterized output image with predefined or standard properties of those rasterization parameters. The resulting intermediate output data, which includes at least one rasterized output image, is transmitted from the information apparatus 200 to an output device 220 in step 1250 or to its associated output controller 230 for rendering or output. The intermediate output data generated in process 1202 in general is less device dependent compared to the intermediate output data generated in the process 1202 shown in Fig 12A. The output controller 230 included or associated with the output device 220 may be preprogrammed to

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interpret the raster output image, which includes properties or attributes that correspond to those standard or predefined parameters.

[0189] The standard or predefined rasterization parameters may be hard coded or programmed into the client application 210 and/or the output controller 230. However, instead of hard coding those parameters, one technique to facilitate updates or changes is to store those standard parameters in a default file or profile. The standard or predefined parameters contained in the file or profile can be retrieved and utilized by applications in an information apparatus 200 (e.g. client application 210) and/or by applications or components in an output device 220 or the output controller 230. In this way, any necessary updates, upgrades or required changes to those predefined or standard parameters can be easily accomplished by replacing or modifying the file or profile instead of modifying or updating the program, application or components in the information apparatus 200, output device 220 and/or output controller 230.

[0190] A client application process 1204 providing universal output capability to information apparatus 200 may include or utilize:

- A client application 210 that obtains content (e.g. digital document) intended for output.
- A client application 210 that optionally obtains user preferences (in step 1220) through (1) user's input (automatic or manual) or selections or (2) based on preset preference or pre-defined defaults or (3) combination of the above.
- A client application 210 that rasterizes content (in step 1230 or 1225) according to pre-defined or standard rasterization parameters.
- A client application 210 that generates intermediate output data (in step 1240) for rendering or output at an output device 220; the intermediate output data containing at least partially a rasterized image related to the content intended for output.
- A client application 210 that transmits the intermediate output data to an output device 220 (in step 1250) for further processing and final output.

[0191] One advantage of the client output process 1204 of Fig 12B compared to the process 1202 illustrated in Fig 12A is that the generated intermediate output data is in general less device dependent. The device independent attribute allows the intermediate output data to be more portable and acceptable to more output

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devices equipped or associated with output controllers. Both data output processes (1202 and 1204) enable universal output; allowing a user to install a single client application 210 or components in an information apparatus 200 to provide output capability to more than one output device 220.

[0192] FIG 13A illustrates one example of an output device process 1302 and its associated raster imaging method of present invention. In this output device process 1302, an output device 220 is capable of receiving an intermediate output data from an information apparatus 200. The output device process 1302 and its operations may include or utilize:

- An output device/system or output controller that receives intermediate output data (in step 1300). The intermediate output data includes at least partially a raster output image describing at least part of the content for rendering at the output device 220 or system 250.
- An output device/system or output controller that interprets (in step 1310) the intermediate output data; in one preferred embodiment, the intermediate output data includes an output image utilizing one or more MRC formats or components.
- An output device/system or output controller that performs image processing operation (in step 1320) on the raster image. The image processing operation may include but not limited to image decompression, scaling, halftoning, color matching, among others.
- An output device/system or output controller that converts and or generates (in step 1330) output-engine output data that is in a format or description suitable for input to an output engine (e.g. printer engine in case of a printer) included in an output device 220.
- An output engine in an output device 220 that renders or generates a final output (e.g. the output-engine output data) in step 1370.

[0193] The output device 220 or output system 250 may include an output controller 230 internally or externally to assist the management and operation of the output process 1302. As shown in Fig 7, there are many possible configurations and implementations of an output controller 230 associated to an output device 220 Herein and after, output controller 230 is regarded as an integral part of the output device to which it is attached. Hence, the following described output device operations may be partially or completely performed by the output controller associated with it.

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[0194] In step 1300, output device process 1302 is initiated by client application 210 transmitting an intermediate output data to output device 220 or output system 250. In step 1310, the output device 220 reads and interprets the intermediate output data, containing at least one raster output image relating to the content intended for output. During the reading and interpretation process 1310, the output device 220 may include components that parse the intermediate output data and perform operations such as decompression, decoding, and decryption among others. The output image may be variously encoded and may include one or more compression methods.

[0195] In the event that the method of image encoding includes MRC format, then, in one example implementation, during decoding and mapping of the output image in step 1310, the lower resolution layer and information in an image that includes MRC may be mapped, scaled or interpolated to a higher-resolution output image to produce a better image quality. Therefore, step 1310, in the event that the intermediate output data includes MRC component, each layer in an MRC image can be decompressed, processed, mapped and combined into a single combined output image layer. Step 1310 may also include scaling, color space transformation, and/or interpolation among others. In addition to the possibility of mapping methods using different scaling and interpolation ratio with different layers, another advantage of using MRC is that segmentation information contained in MRC can be utilized to apply different image processing and enhancement techniques to data in different layers of an MRC image in step 1320.

[0196] In step 1320, the output device 220 may further perform image processing operations on the decoded output image. These image processing operations may include, for example, color correction, color matching, image segmentation, image enhancement, anti-aliasing, image smoothing, digital watermarking, scaling, interpolation, and halftoning among others. The image processing operations 1320 may be combined or operated concurrently with step 1310. For example, while each row, pixel, or portion of the image is being decoded and or decompressed, image processing operations 1320 is applied. In another implementation, the image processing 1320 may occur after the entire output image or a large portion of the image has been decoded or decompressed.

[0197] If the intermediate output data includes MRC component, then in step 1320, there are additional opportunities to improve image quality. An image encoded in MRC contains segmented

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information that a traditional single layer image format does not usually have. As an example, foreground can be in one layer, and background in another. As another example, chrominance information may be in one layer and luminance may be in another. This segmented information in MRC may be used to apply different or selective image processing methods and algorithms to different layers or segments to enhance image quality or retain or recover image information. Different image processing techniques or algorithms may include color matching, color correction, black generation, halftoning, scaling, interpolation, anti-aliasing, smoothing, digital watermarking etc. For example, one can apply colorimetric color matching to foreground information and perceptual color matching to background information or vice versa. As another example, error diffusion halftoning can be applied to foreground and stochastic halftoning can be applied to background or vice versa. As yet another example, bi-cubic interpolation can be applied to a layer and bi-linear or minimum distance interpolation can be applied to a different layer.

[0198] In step 1330, the output device 220 or the output controller 230 may convert the processed image (e.g. halftoned) into a form acceptable to the output engine of output device 220. This conversion step is optional, depending on the type, format and input requirement of a particular output device engine (e.g. printer engine in case of a printer). Different output engines may have different input raster image input requirements. As an example different output engines may require different input image formats, number of bits or bytes per pixel, compression or uncompressed form, or different color spaces (e.g. such as RGB, CMY, CMYK, or any combination of Hi-Fi color such as green, orange, purple, red etc). Incoming raster image data can be encoded in a row, in a column, in multiple rows, in multiple columns, in a chunk, in a segment, or a combination at a time for sending the raster data to the output engine. In some cases, step 1330 may be skipped if the result of step 1320 is already in a form acceptable to the output device engine. In other cases, however, further conversion and or processing may be required to satisfy the specific input requirement of a particular output device engine.

[0199] It is important to note that the above described processing from step 1310 to step 1330 may require one or more memory buffers to temporarily store processed results. The memory buffer can store or hold a row, a column, a portion, or a chunk, of the output image in any of the steps described above. Storing and

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retrieving information into and from the memory buffer may be done sequentially, in an alternating fashion, or in an interlaced or interleaved fashion among other possible combinations. Step 1310 to step 1330 operations can be partially or completely implemented with the output controller 230.

[0200] In step 1370, the output device engine included in the output device 220 or output system 250 receives the output-engine output data generated in step 1330 or step 1320. The output-engine output data is in a form that satisfies the input requirements and attributes of the output engine, such as color space, color channel, bit depth, output size, resolution, etc. The output engine then takes this output-engine output data and outputs or renders the data content through its marking engine or display engine.

[0201] One advantage of data output method 1002 that includes output device process 1302 is that it has less processing requirements on an information apparatus 200 compared to conventional process with reference to Fig 1A, and therefore, enables more information apparatus 200 with relatively lower processing power and memory space to have output capability.

[0202] For example, some image processing functions, such as halftoning (e.g. error diffusion) may require substantial processing and computing power. In data output process 1002 that includes output device process 1302, halftoning is performed in step 1320 by an output device component (e.g. the output controller 230) included in the output device 220 or the output system 250, not in the information apparatus 200; therefore reducing the computational requirements for the information apparatus 200. Another advantage of data output 1302 is that the intermediate output data is less device dependent than the output data generated by conventional output method 102 with reference to Fig 1A. The device independence provides opportunity to allow a single driver or application in an information apparatus 200 to output intermediate output data to a plurality of output devices 220 that include output controllers 230.

[0203] Some output devices 220 may contain a printer controller 410. An example of this type of output device or printer is a PostScript printer or PCL printer among others. FIG 13B illustrates an example of an output device process 1304 with a printer that includes a printer controller 410. As discussed in Fig 1, a printer with a printer controller requires input such as page description language (e.g. PostScript, PCL etc.), markup language

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(HTML, XML etc), special image format, special graphics format, or a combination, depending on the type of the printer controller.

[0204] There are many printing system configurations for providing the data output capability and process to a printer or a printing system that includes a printer controller. In one example, the existing printer controller in the output device 220 may incorporate the feature sets provided by the output controller to form a "combined controller" as described previously with reference to Figs 7C and 7F. In another example, the output controller 230 of present invention may be connected sequentially or cascaded to an existing printer controller; the output controller 230 can be internally installed (with reference to FIG. 7B) or externally connected (with reference to FIG. 7A) to the output device 220. For output device 220 that includes a printer controller, the output controller 230 may simply decode the intermediate output data in step 1310 and then convert it into a form acceptable for input to the printer controller in step 1350.

[0205] An output device process 1304 and operations for an output device 220 or system 250 that includes a printer controller 410 may include or utilize:

- An output controller 230 or components in an output device 220 or system 250 that receives an intermediate print data or output data (with reference to step 1300), the intermediate print data includes at least a raster image related at least in part to the content for rendering at the output device 220.
- An output controller 230 or components in an output device 220 or system 250 that interprets the intermediate output data (with reference to step 1310); in one preferred embodiment, the intermediate output data includes an output image utilizing one or more MRC format or components.
- An output controller 230 or components in an output device 220 or system 250 that converts the intermediate output data into a printer-controller print data (with reference to step 1350); the printer-controller print data includes a format or language (e.g. PDL, PDF, HTML, XML etc.) that is acceptable or compatible to the input requirement of a printer controller.
- A printer controller or components in an output device 220 or system 250 that receives a printer controller print data; the printer controller may parse, interpret and further process (e.g. rasterization, scaling, image enhancement, color correction, color matching, halftoning etc.) and convert the printer-controller print data into a printer-engine print data (with reference to step

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1360); the printer-engine print data comprising of a format or description acceptable for input to a printer engine in the output device 220 or the output system 250.

• A printer engine or components in an output device 220 or system 250 that renders or generates a final output (with reference to step 1370) with the input printer engine print data.

[0206] In output device process 1304, step 1300 (receiving intermediate output data) and step 1310 (interpret intermediate output data) are identical to step 1300 and step 1310 in output device process 1302, which have been described in previous sections with reference to Fig. 13A.

[0207] In step 1350, the output controller 230 converts the intermediate print data into a printer-controller print data that is in a form compatible or acceptable for input to a printer controller. For example, a printer controller may require as input a specific page description language (PDL) such as PostScript. The output controller 230 then creates a PostScript file and embeds the output image generated or retrieved in step 1310 into the PostScript file. The output controller 230 can also create and embed the output image from step 1310 into other printer controller print data formats, instructions or languages.

[0208] In step 1360, the printer controller receives printer-controller print data generated in step 1350 that includes an acceptable input language or format to the printer controller. The printer controller may parse, interpret, and decode the input printer-controller print data. The printer controller may further perform raster image processing operations such as rasterization, color correction, black generation, GCR, anti-aliasing, scaling, image enhancement, and halftoning among others on the output image. The printer controller may then generate a printer-engine print data that is suitable for input to the printer engine. The type and or format of printer-engine print data may vary according to the requirement of a particular printer engine.

[0209] It is important to note that the above described process from step 1310 to step 1360 may require one or more memory buffer to temporarily store processed results. The memory buffer can store or hold a row, a column, a portion, or a chunk, of the output image in any of the steps described above. Storing and retrieving information into and from the memory buffer may be done sequentially, alternated, or in an interlaced or interleaved fashion among other possible combinations. Process and operations

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of step 1310 to step 1360 can be implemented with output controller 230.

[0210] In step 1370, the printer engine included in the output device 220 or output system 250 generates or renders the final output based on the printer-engine print data generated in step 1360. For example, the printer-engine print data may be in CMY, CMYK, and RGB etc, and this may be in one or more bits per pixel format, satisfying the size and resolution requirement of the printer engine. The printer engine included the output device 220 may take this print data and generate or render an output page through its marking engine.

[0211] Having described and illustrated the principles of our invention with reference to an illustrated embodiment, it will be recognized that the illustrated embodiment can be modified in arrangement and detail without departing from such principles. In view of the many possible embodiments to which the principles of our invention may be applied, it should be recognized that the detailed embodiments are illustrative only and should not be taken as limiting the scope of our invention. Rather, I claim as my invention all such embodiments as may come within the scope of the following claims and equivalents thereto.

[0212] Unless the context indicates otherwise, a reference in a claim to the number of instances of an element, be it a reference to one instance or more than one instance, requires at least the stated number of instances of the element but is not intended to exclude from the scope of the claim a structure or method having more instances of that element than stated. Specifically, but without limitation, a reference in a claim to an or one output device or system, to an or one image, or to a or one rasterization parameter is not intended to exclude from the scope of the claim a structure or method having, including, employing or supplying two or more output devices or system, images or rasterization parameters.

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CLAIMS

1. A data output method for rendering at an output device content at least partly accessible with an information apparatus, comprising:

obtaining at the information apparatus one or more rasterization parameters corresponding to the output device;

conforming at the information apparatus at least part of the data content into one or more output images with said one or more rasterization parameters;

transmitting an intermediate output data from the information apparatus to an output controller that is distinct from the information apparatus and associated with the selected output device, the intermediate output data including said one or more output image;

converting at the output controller, the intermediate output data into an output data acceptable for rendering at the output device.

2. The method of claim 1 comprising obtaining the one or more rasterization parameters from one or more of the output device or user input or default value.

3. The method of claim 1 in which the one or more output images are associated with different slides, pages or cards.

4. The method of claim 1 in which the conforming includes one or more of a rasterization operation, a scaling operation, an interpolation operation, and a compression operation.

5. The method of claim 1 in which the content includes text or graphics elements and the conforming of at least part of the content include rasterizing the content into image form.

6. The method of claim 1 comprising transmitting the intermediate output data by wireless communication.

7. The method of claim 1 in which the output controller is included in the output device.

8. The method of claim 1 further comprising performing at the output controller one or more image processing operations on the one or more output images included in the intermediate output

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data, the one or more image processing operations including one or more of a color correction operation, a color matching operation, a color management operation, a scaling operation, an interpolation operation, a color space conversion, a compression operation, and a halftoning operation.

9. The method of claim 1 in which the output device is a printing device and the method further comprising conforming the intermediate output data into a print data that is acceptable to a printer controller associated with the output device.

10. The method of claim 1 further comprising obtaining at the information apparatus a data content for rendering at the selected output device.

11. A data output method for rendering content at least partly accessible with an information apparatus, comprising:

establishing a communication channel between the information apparatus and one or more output devices with short range wireless communication;

conforming at the information apparatus at least part of the data content into one or more output images with at least one predefined or standard rasterization parameters;

generating at the information apparatus a device independent intermediate output data, the intermediate output data including the one or more output images ;

delivering via the established communication channel the intermediate output data from the information apparatus to said one or more output devices for rendering; and

converting at said one or more output devices the intermediate output data into an output data acceptable for rendering by an output engine included in said one or more output devices.

12. The method of claim 11 further comprising discovering the selected output device as one of one or more output devices that are discovered by the information apparatus as being available for rendering the output content.

13. A data output method for rendering at an output device content at least partly accessible with an information apparatus, comprising:

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selecting an output device with an output engine for rendering the data content;

conforming at least part of the content into one or more output images with at least one rasterization parameter related at least in part to the selected output device; generating an intermediate output data that includes said one or more output images;

delivering the intermediate output data for rendering by the selected output device;

receiving at the selected output device the intermediate output data;

performing one or more image processing operations on said one or more output images; and

converting at the selected output device the intermediate output data into an output data acceptable for rendering by the output engine included in the selected output device.

14. The method of claim 13 further comprising discovering the selected output device as one of one or more output devices that are discovered by the information apparatus as being available for rendering the output content.

15. The method of claim 13 in which the information apparatus discovers the one or more output devices with wireless communication.

16. The method of claim 13 in which discovering the one or more output devices includes the information apparatus sending an output service request and awaiting a response from one or more output devices.

17. The method of claim 13 in which discovering the one or more output devices includes one or more output devices posting their availability and the information apparatus contacting one or more of the one or more output devices.

18. The method of claim 13 in which discovering the one or more output devices includes the information apparatus obtaining from a service node information about the one or more output devices and the information apparatus contacting one or more of the one or more output devices.

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19. The method of claim 13 in which discovering one or more output devices involves determining if the one or more output devices satisfy one or more output service requirements.

20. The method of claim 13 further comprising obtaining at least partial output device profile form the one or more output devices that are discovered.

21. The method of claim 13 further comprising providing at the information apparatus information related to the one or more output devices discovered by the information apparatus and obtaining from a user a selection of the selected output device.

22. The method of claim 13 in which the selecting includes automatic selection by one or more components of the information apparatus.

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ABSTRACT

A data output method for rendering at an output device content accessible with an information apparatus, includes obtaining at the information apparatus one or more rasterization parameters corresponding to the output device and conforming at the information apparatus at least part of the data content into one or more output images with said one or more rasterization parameters. An intermediate output data is transmitted from the information apparatus to an output controller that is distinct from the information apparatus and associated with the selected output device, the intermediate output data including said one or more output image. The intermediate output data is converted at the output controller into an output data acceptable for rendering at the output device.

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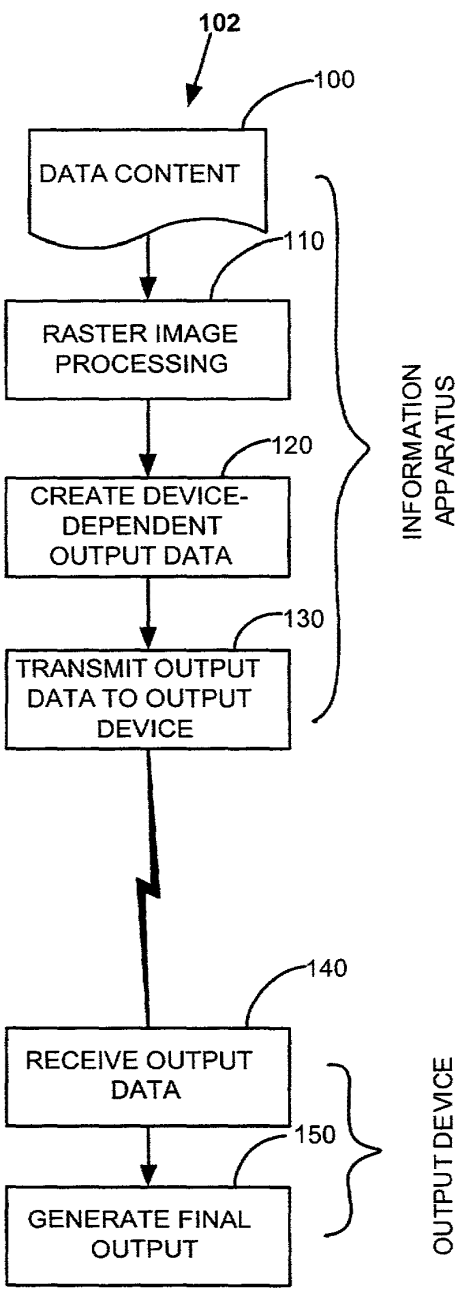


FIG 1 A

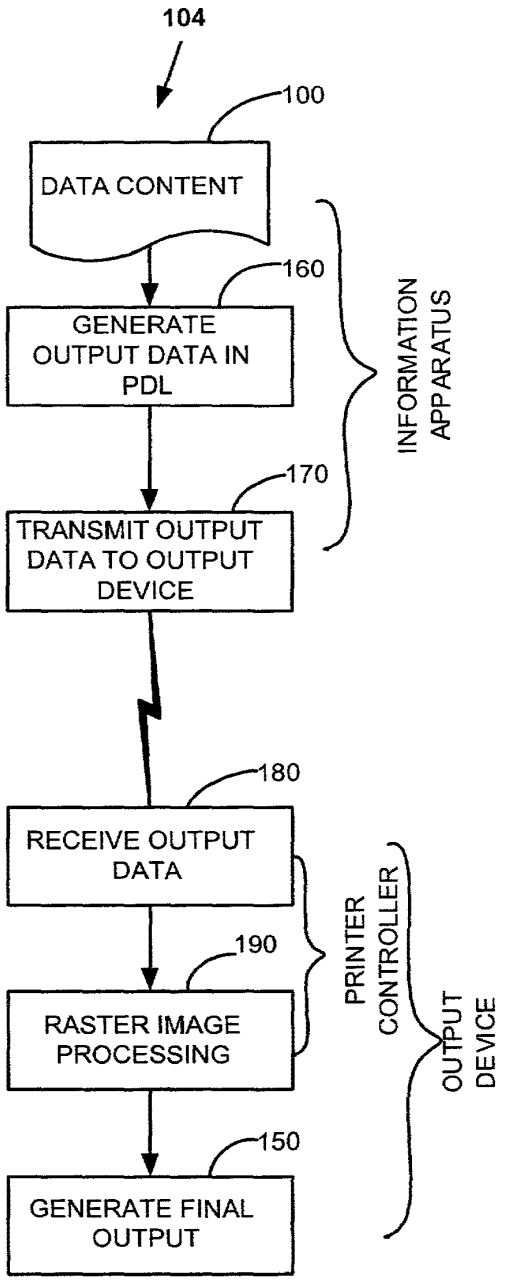


FIG 1 B

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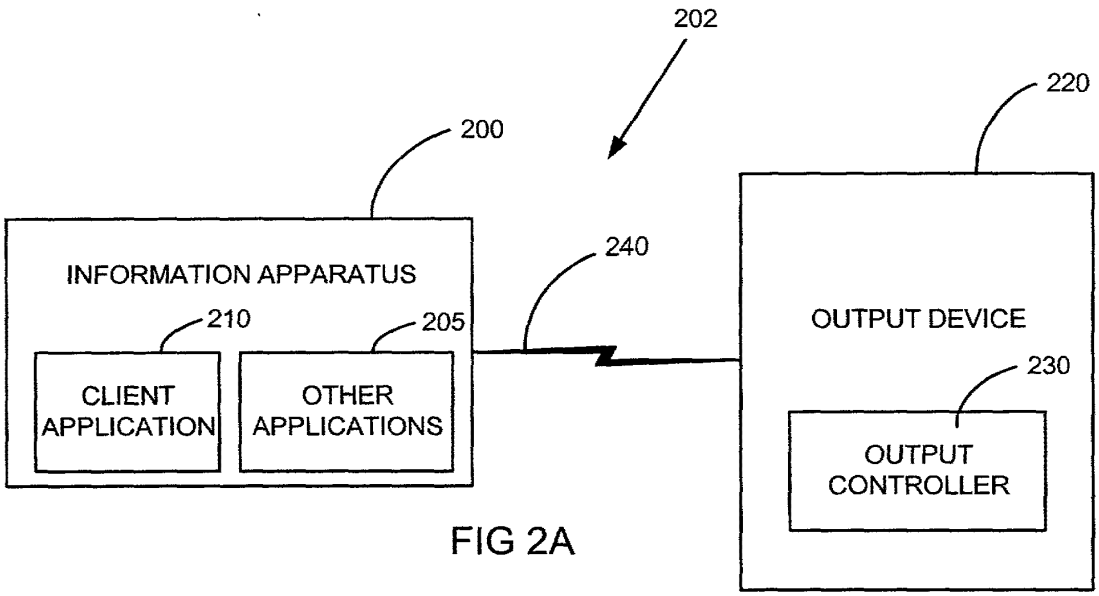


FIG 2A

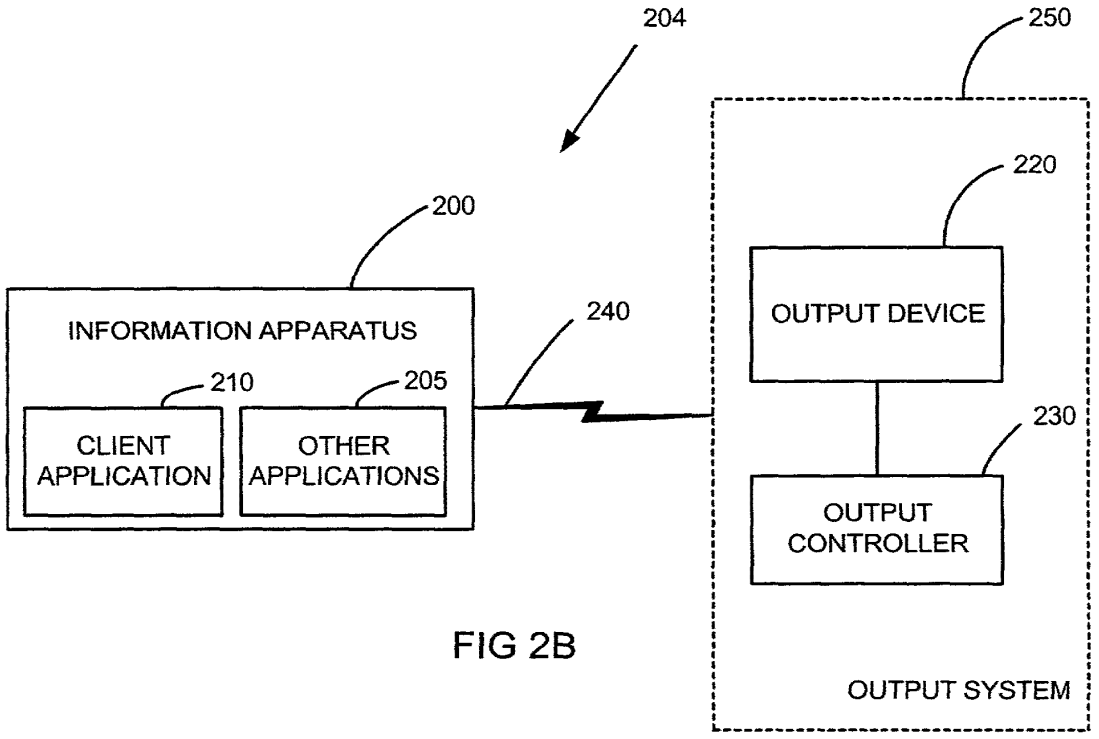


FIG 2B

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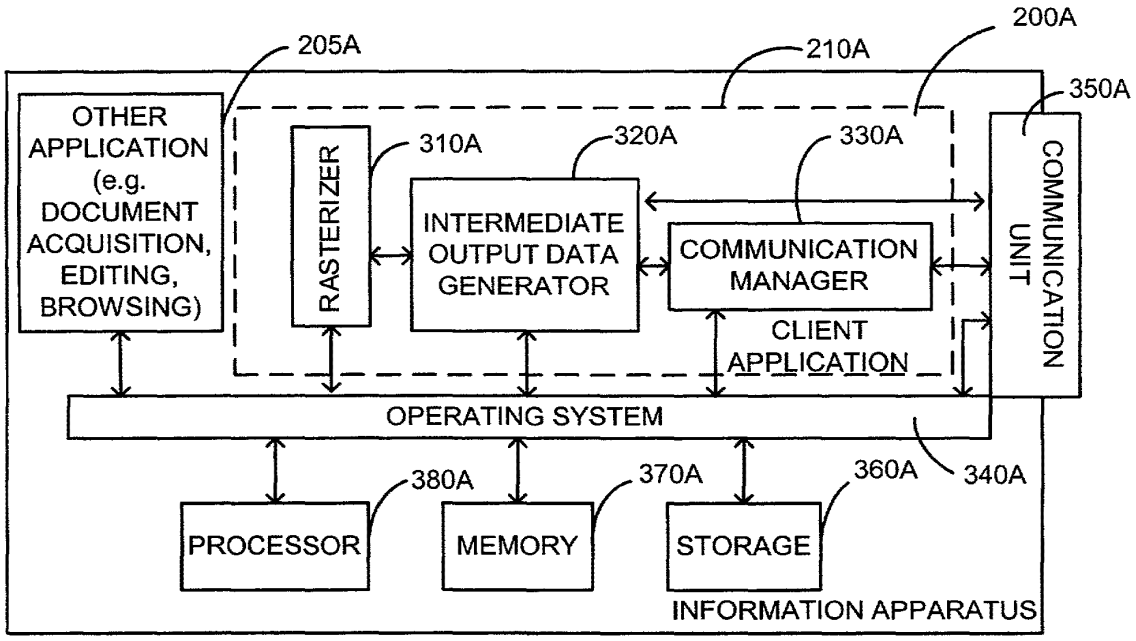


FIG 3A

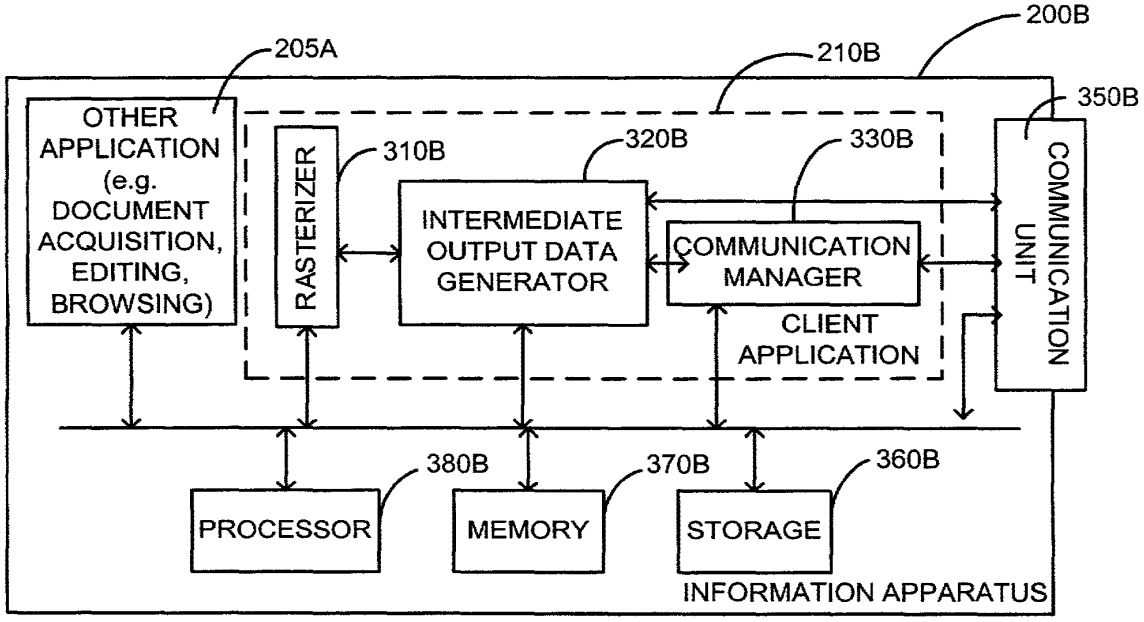


FIG 3B

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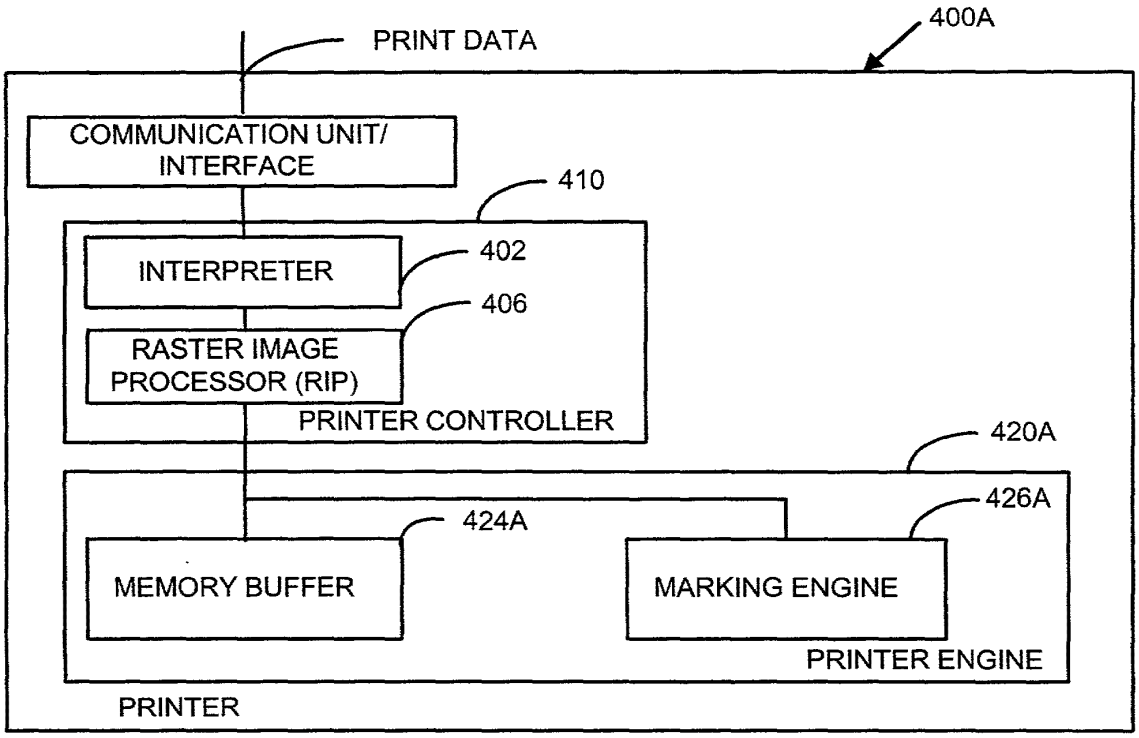


Fig. 4 A

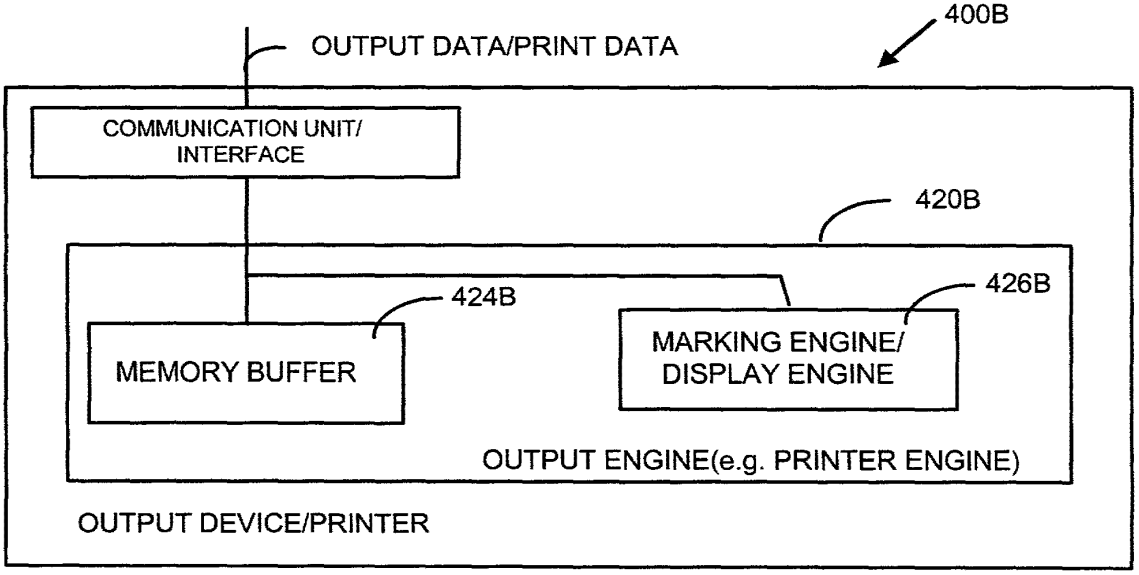


Fig. 4 B

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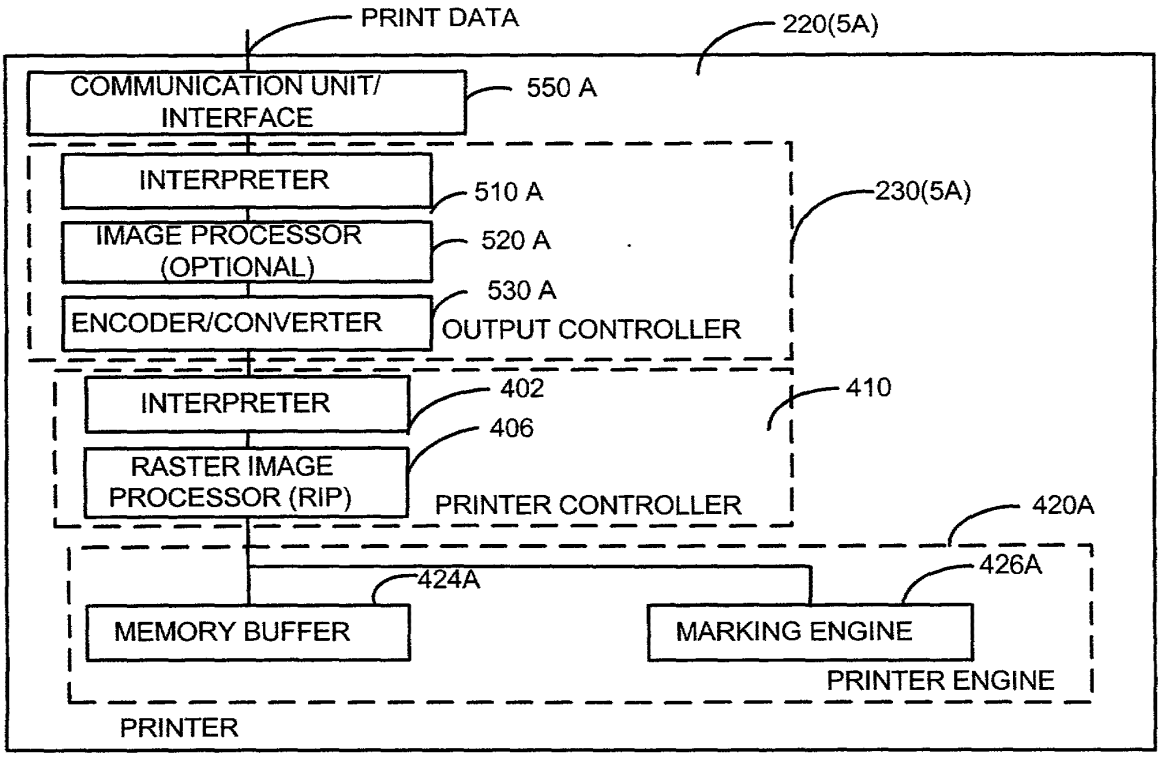


Fig. 5 A

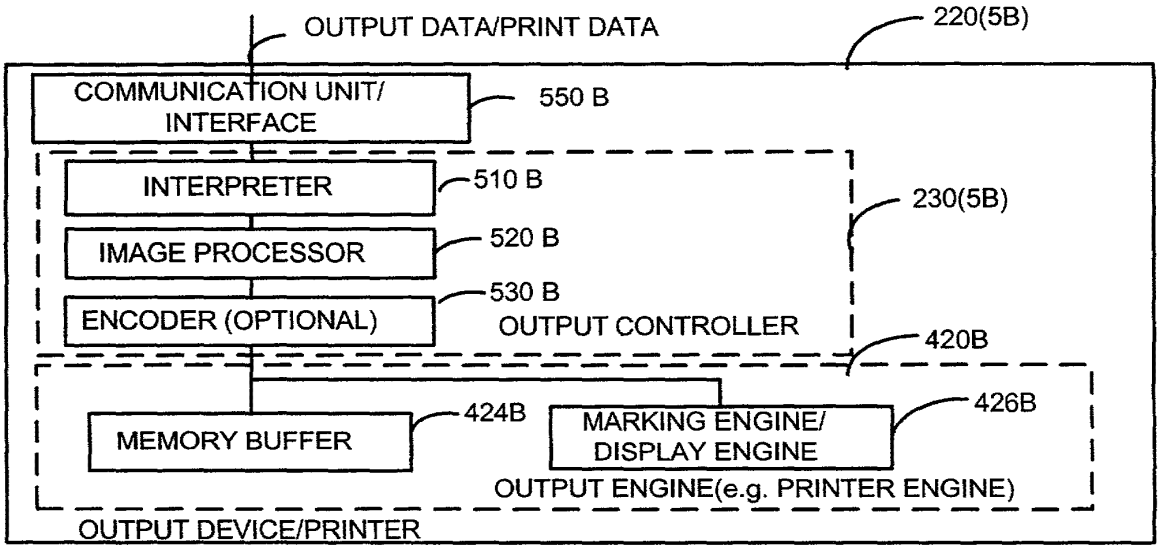


Fig. 5 B

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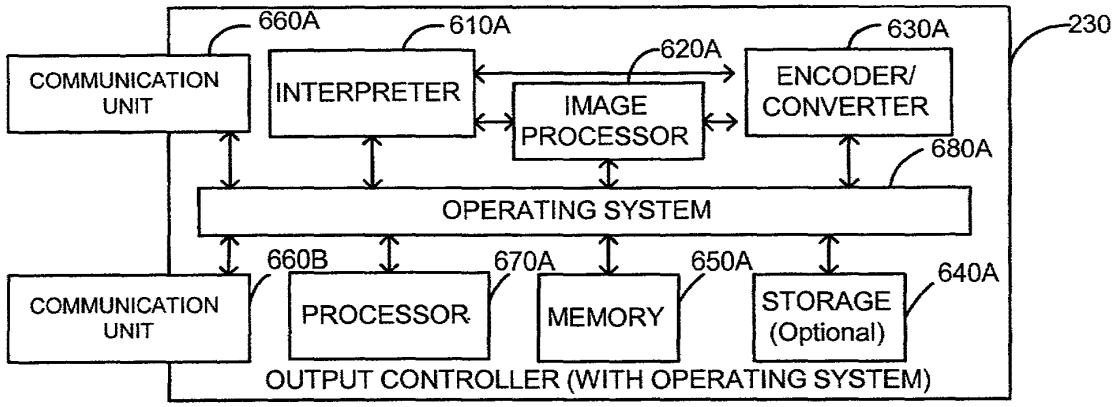


Fig 6 A

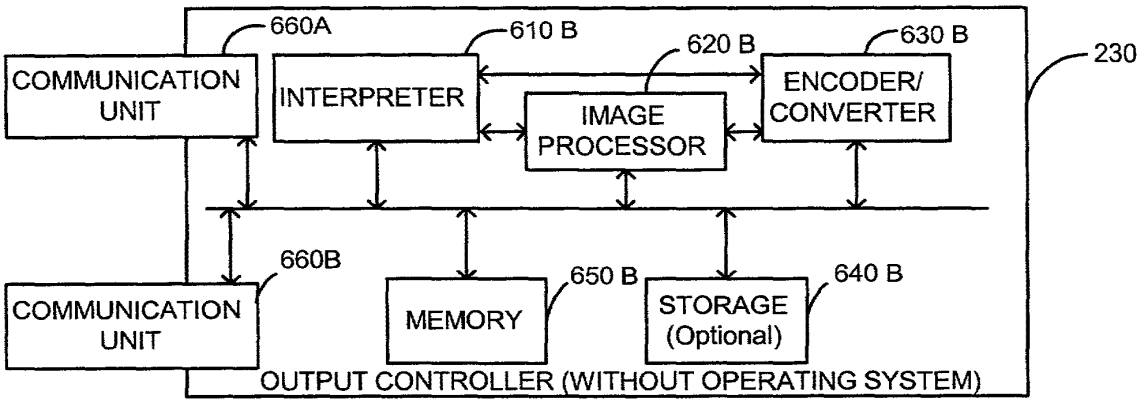


FIG 6 B

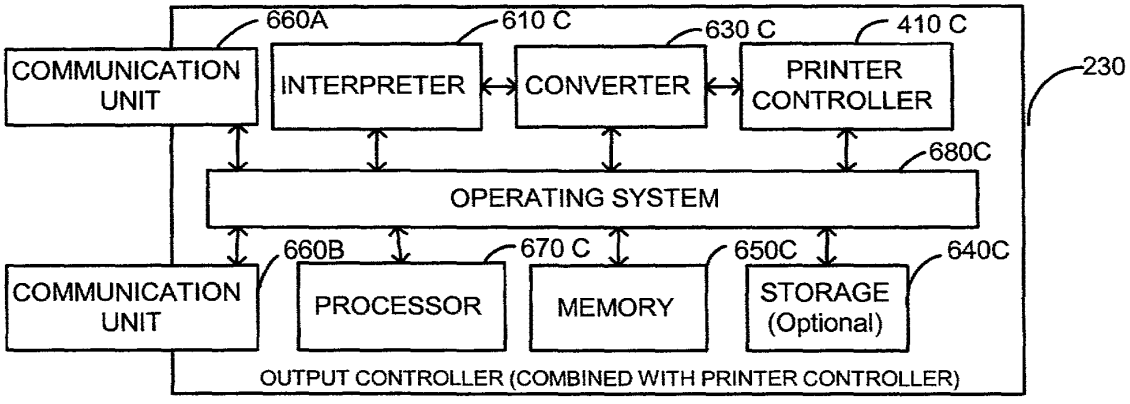


FIG 6 C

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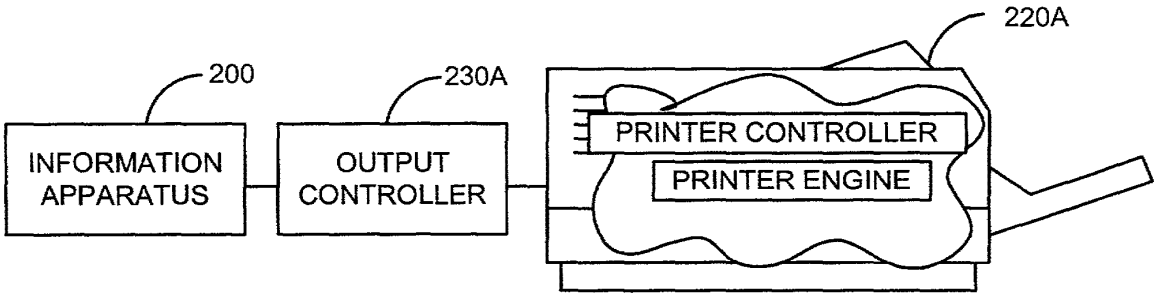


Fig. 7A

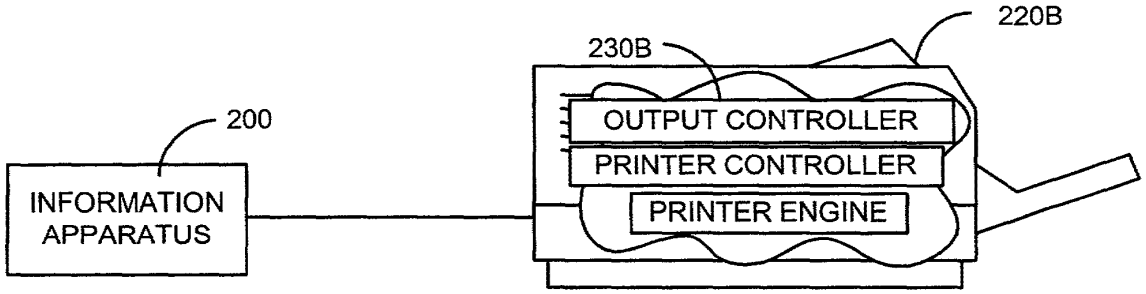


Fig. 7B

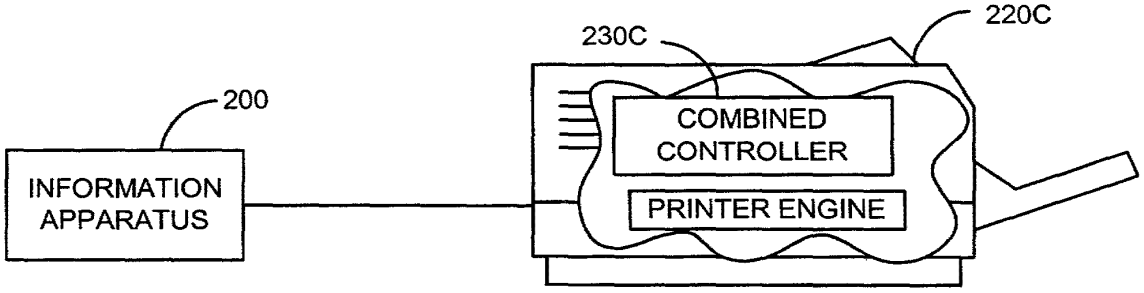


Fig. 7C

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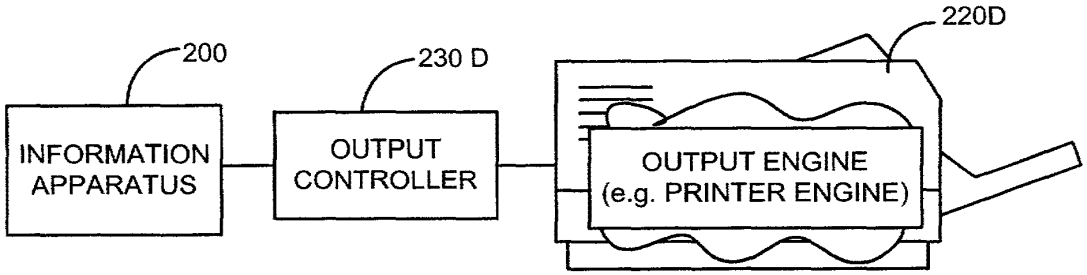


FIG 7D

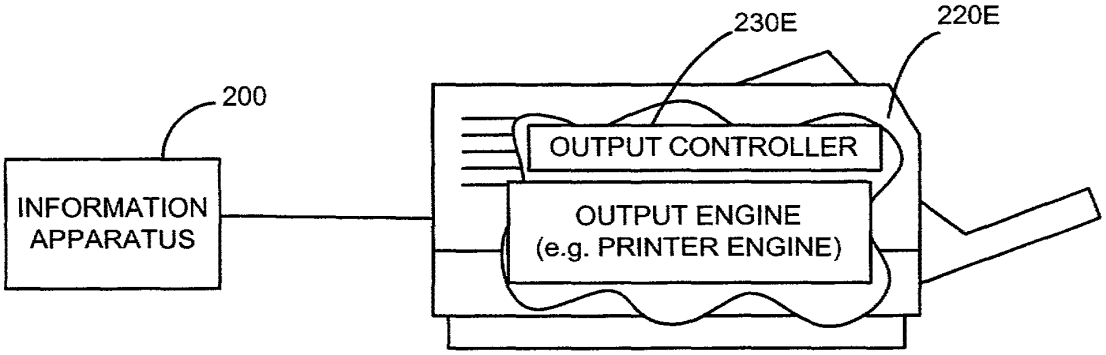


FIG 7E

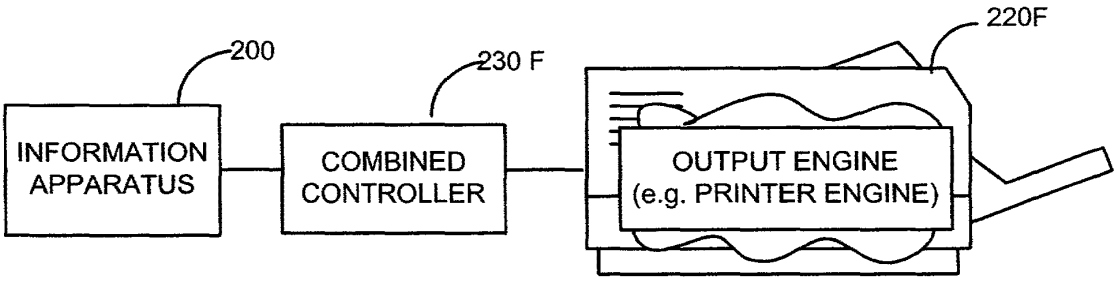


FIG 7F

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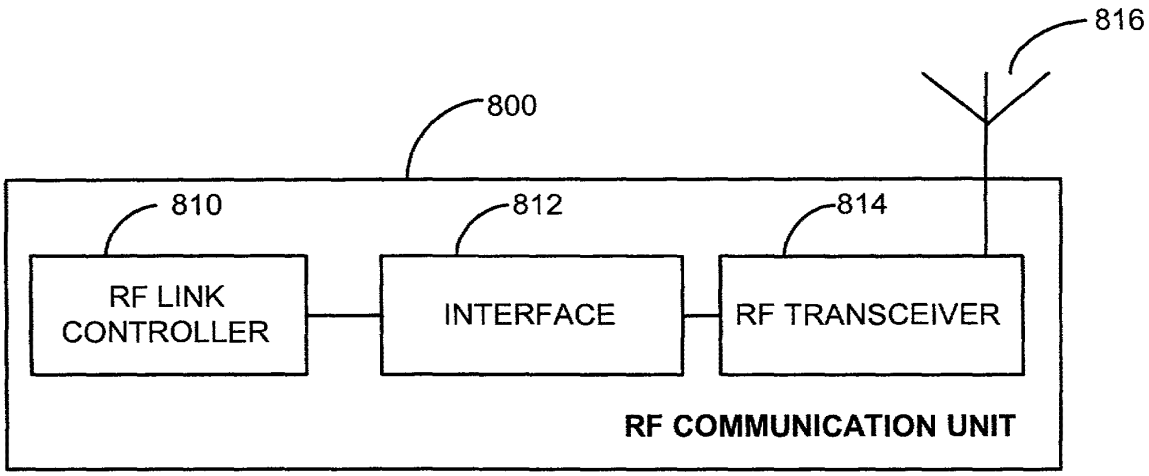


FIG 8A

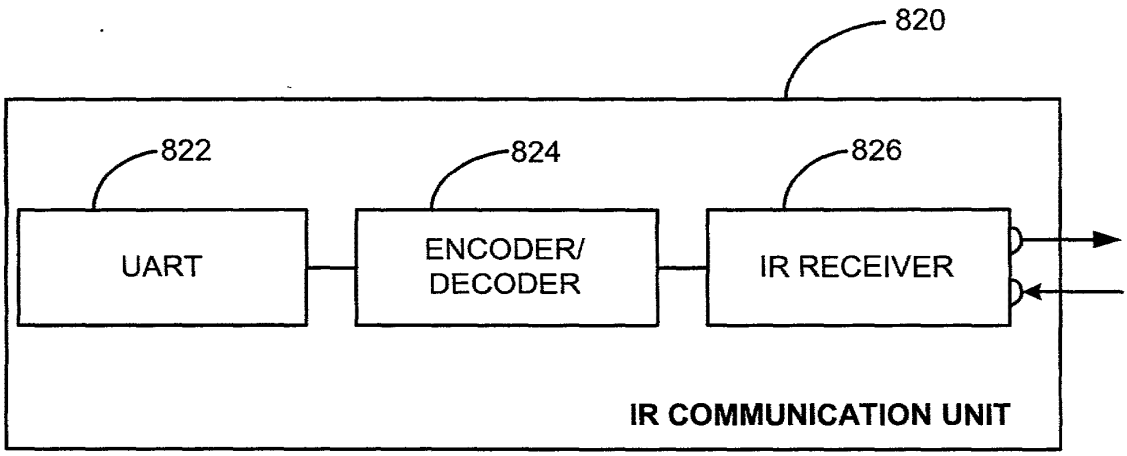


FIG 8B

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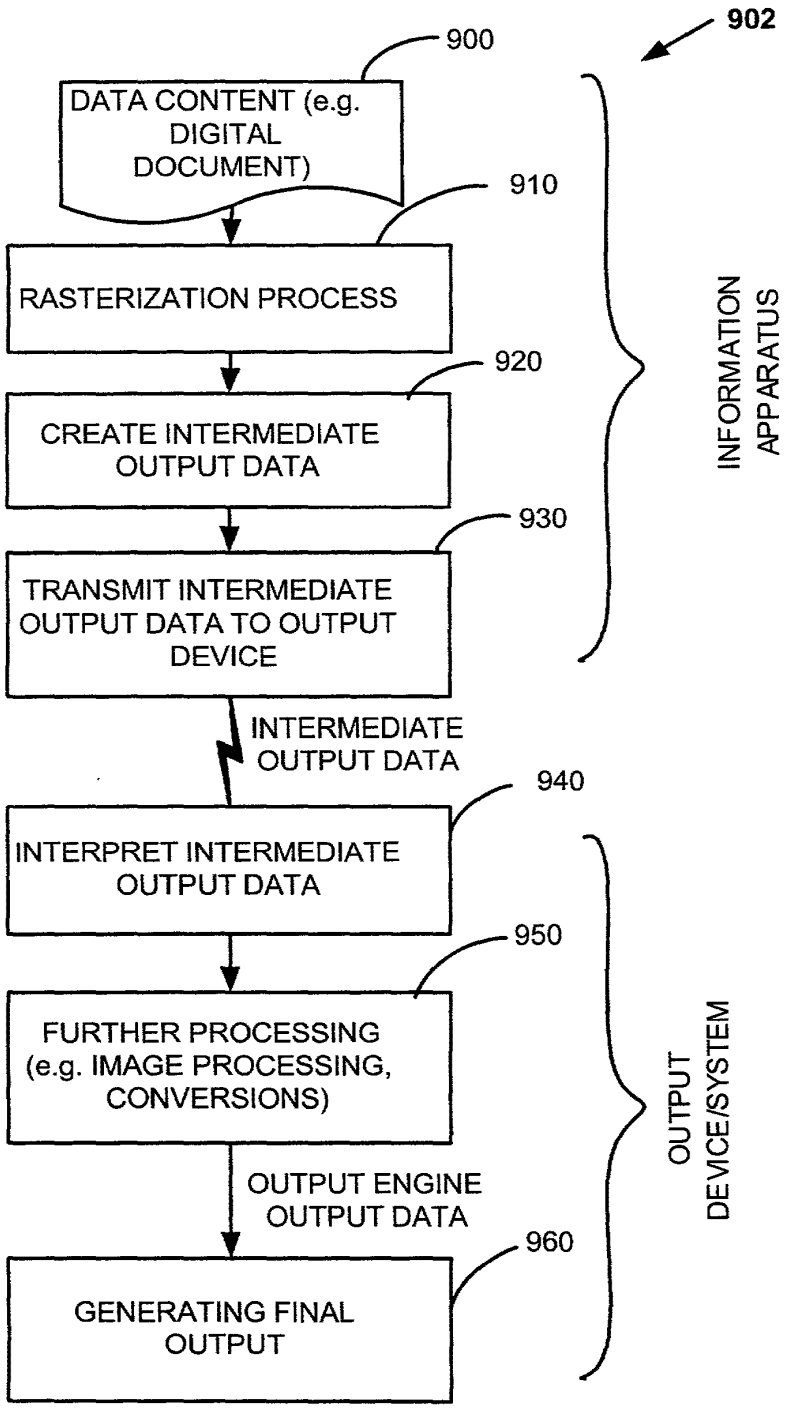


FIG 9

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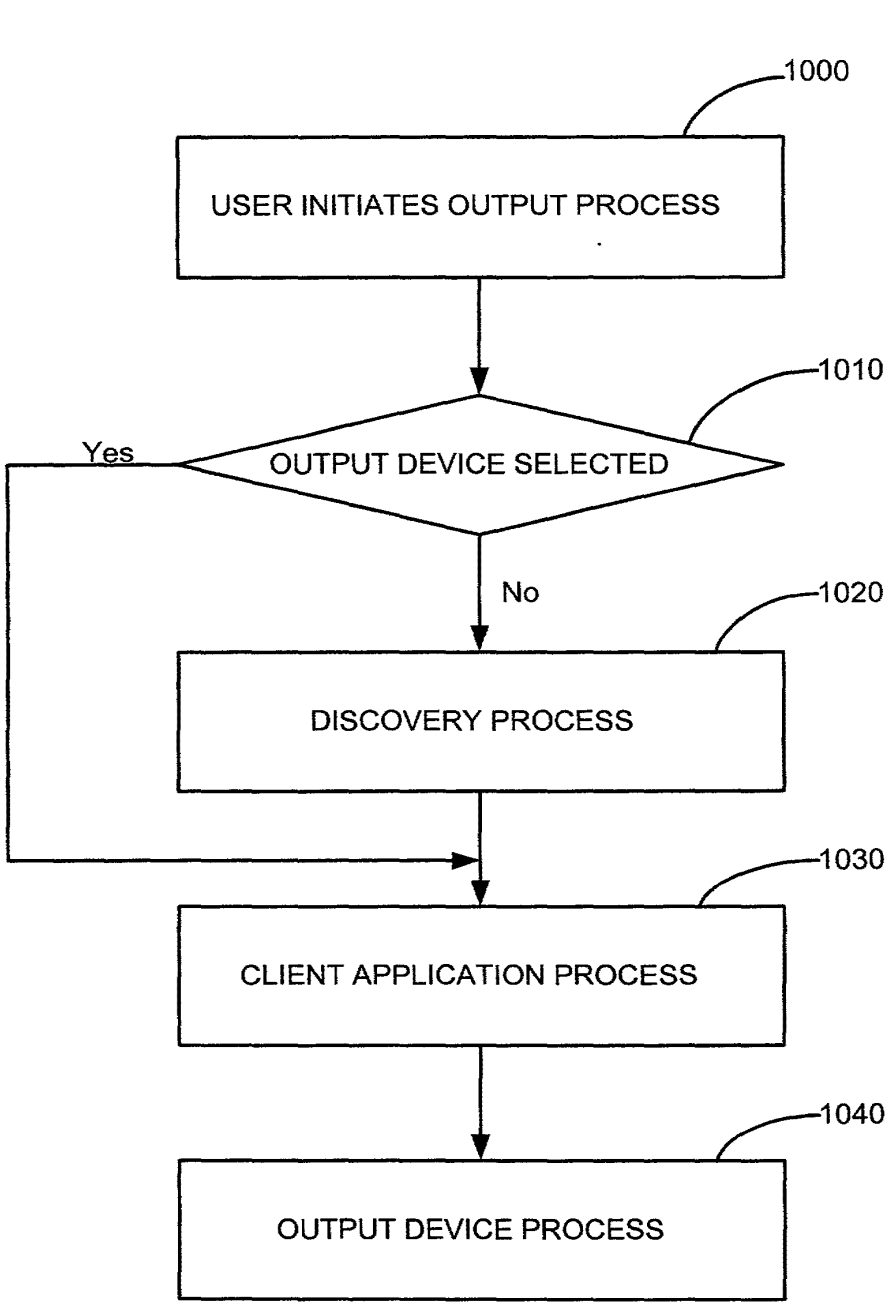


FIG 10

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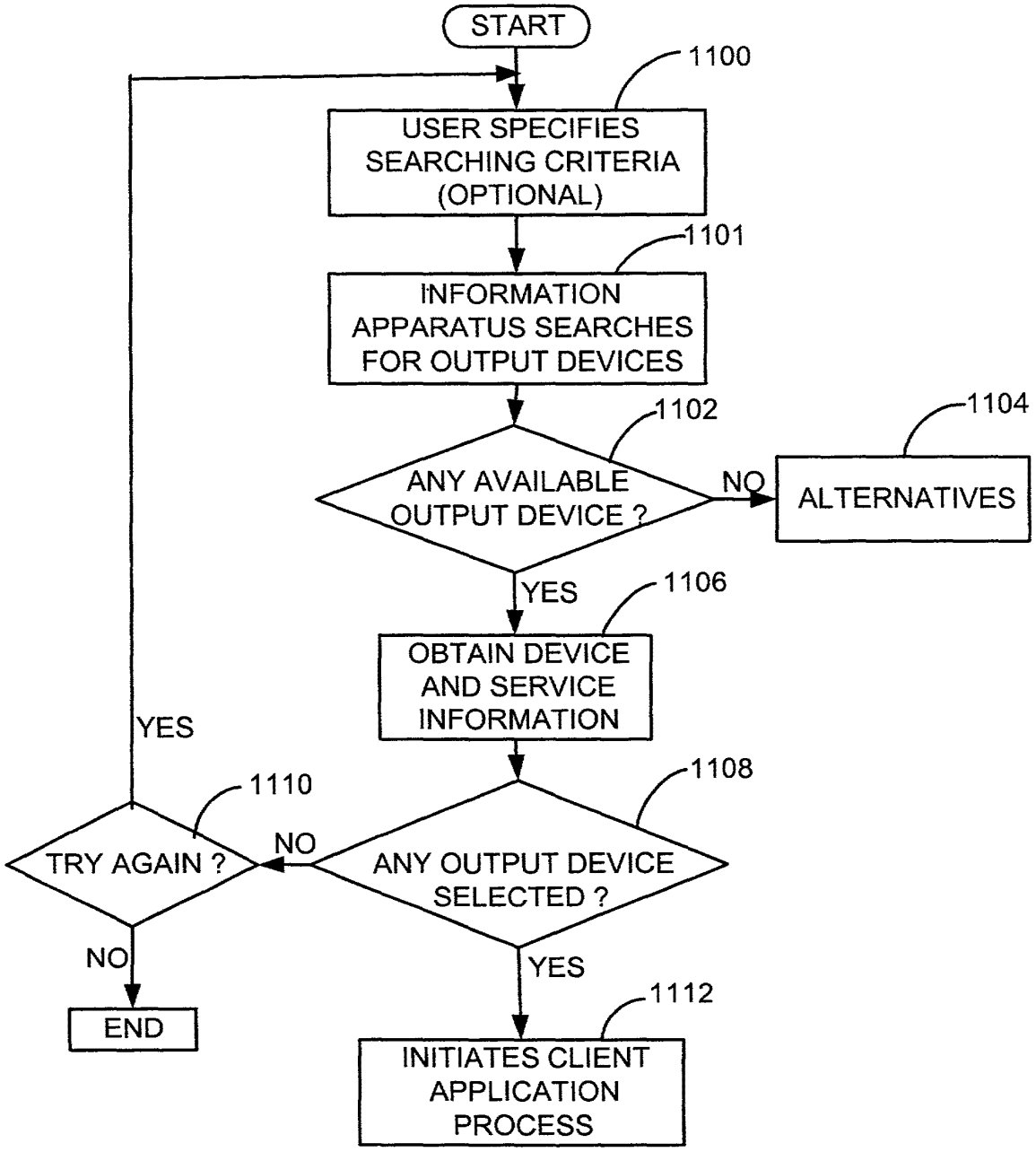


FIG 11

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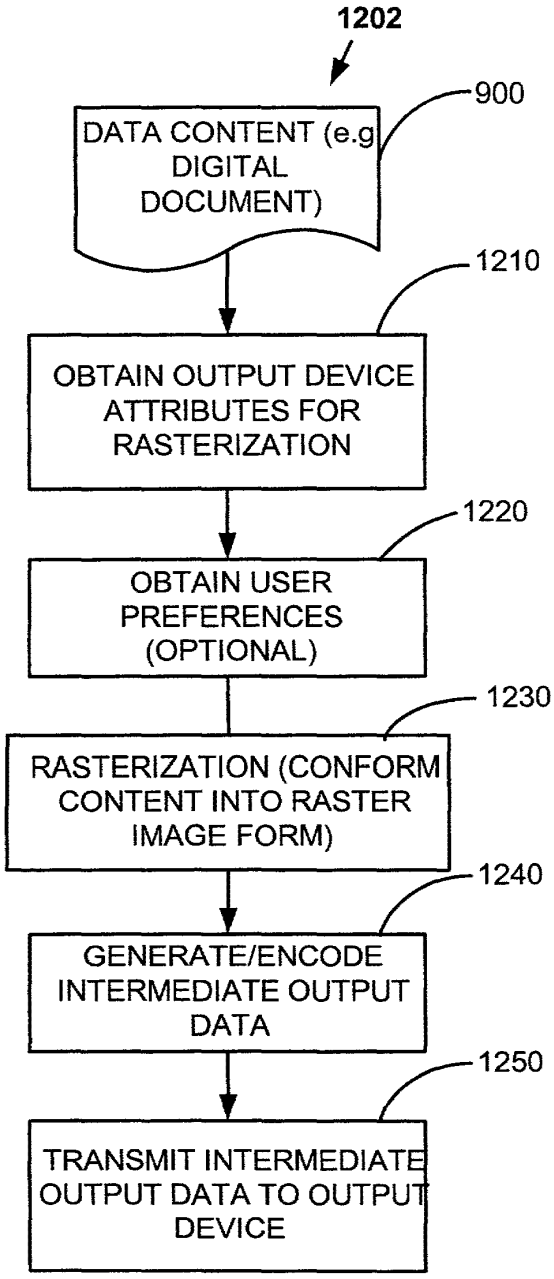


FIG 12 A

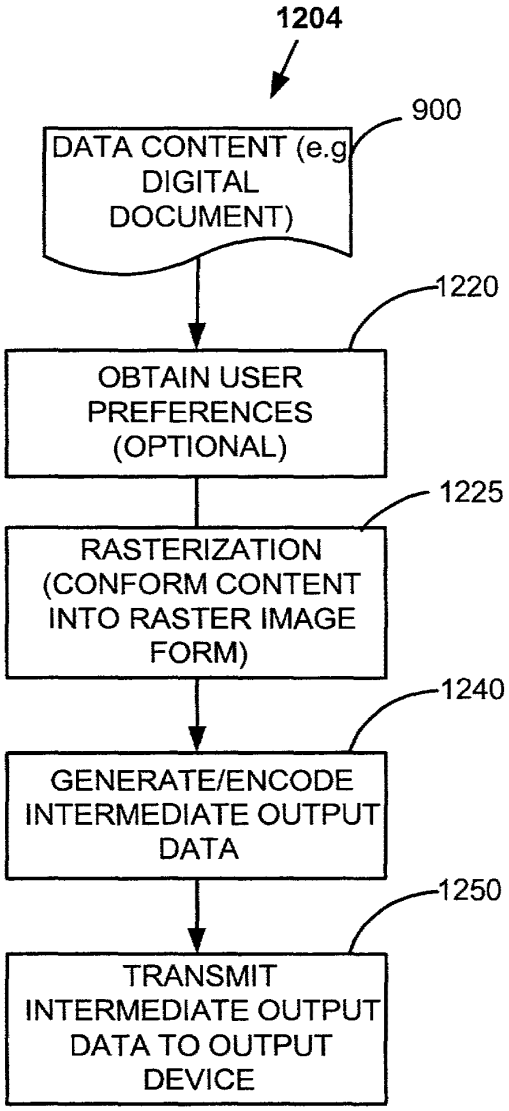


FIG 12 B

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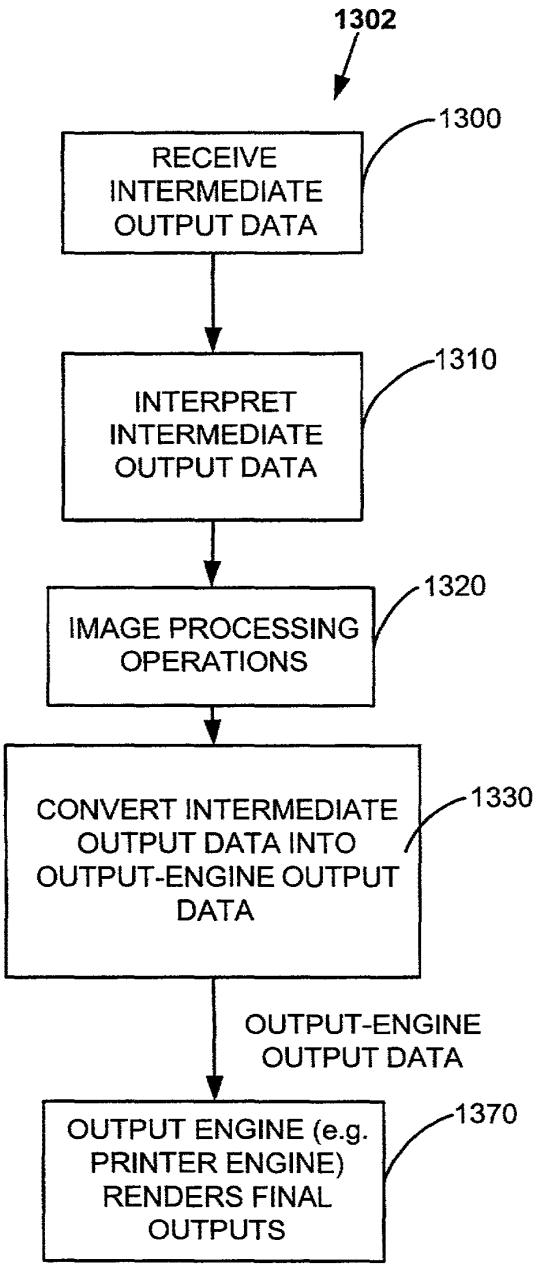


FIG 13 A

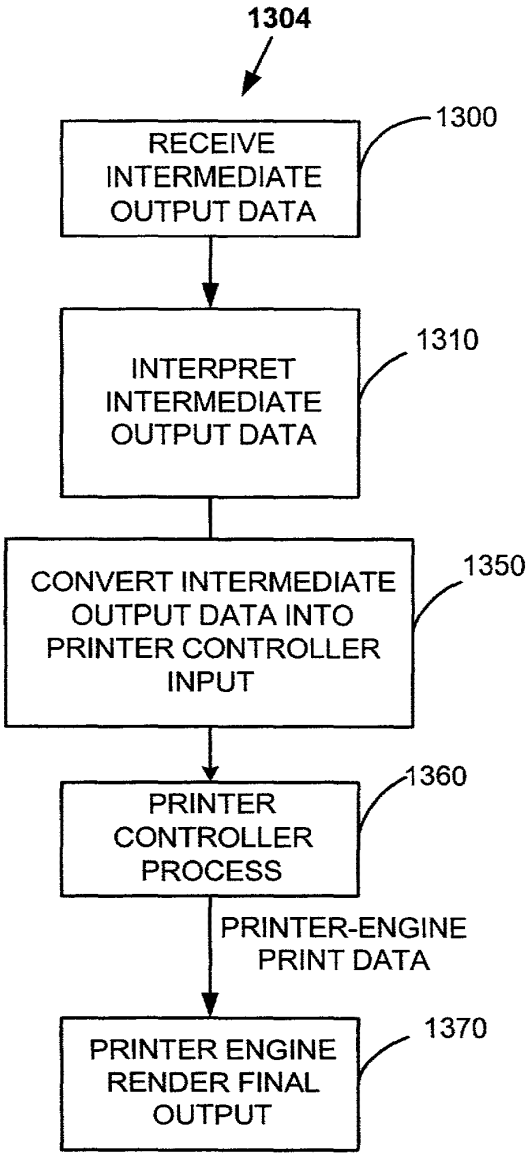


FIG 13 B

Lexmark, Exhibit 1002
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Attorney's Docket No. FLEX 2233-001

DECLARATION FOR PATENT APPLICATION
(COMBINED WITH POWER OF ATTORNEY)
(ORIGINAL APPLICATION)

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name. I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: Methods for Universal Data Output

the specification of which is attached hereto unless box (a) or (b) is checked, in which case

(a) [ ] the specification was filed on _____ as Application No. _____.

(b) [ ] the specification was filed as PCT International Application No. _____ filed on _____ and was amended under PCT Art. 19 on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Sec. 1.56.

I have identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America and filed less than 12 months (6 months for designs) prior to this United States application and of which I claim foreign priority benefits under Title 35, United States Code, Sec. 119, and I have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

EARLIEST FOREIGN APPLICATION, AND ALL FOREIGN APPLICATIONS FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

Country	Application No.	Filing Date mm/dd/yyyy
_____	_____	_____

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As a named inventor, I hereby appoint the practitioners associated with **Customer Number 007812** (John Smith-Hill, Reg. No. 27,730 and Daniel J. Bedell, Reg. No. 30,156) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith and in connection with the resulting patent.

Send correspondence to the correspondence address associated with **Customer Number 007812.**

I hereby authorize the practitioners that I have appointed to accept instructions regarding this application and the resulting patent from FLEXIWORLD TECHNOLOGIES, INC.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Title 18, United States Code, Sec. 1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first joint inventor
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Inventor's signature William Chang

Date 1-18-02 Country of Citizenship US

Residence: Vancouver, Washington
Post Office Address: 16900 S.E. 26th Drive #94,
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Full name of second joint inventor, if any
Christina Ying LIU

Inventor's signature Christina Liu

Date 1-18-02 Country of Citizenship Peoples Republic of China

Residence: Vancouver, Washington

Post Office Address: c/o FLEXIWORLD TECHNOLOGIES, INC.
P.O. Box 87237, Vancouver, Washington 98687

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Lexmark v. Flexiworld

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COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

Bib Data Sheet

CONFIRMATION NO. 4711

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/053,651	01/18/2002 RULE	707	2171	FLEX 2406

APPLICANTS

William Ho Chang, Vancouver, WA;
Christina Ying Liu, Vancouver, WA;

** CONTINUING DATA **********

THIS APPLN CLAIMS BENEFIT OF 60/262,764 01/19/2001

** FOREIGN APPLICATIONS **********

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 03/19/2002

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☐ no	WA	14	22	3
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

ADDRESS

007812

TITLE

Methods for universal data output

FILING FEE RECEIVED		
370	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

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PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

01/28/2002 VTRUONG1 00000312 10053651
01 FC:201 — 370.00 OP

02/12/2004 KDAVIS 00000002 192560 10053651
01 FC:2001 15.00 DA 370.00 OP

PTO-1556
(5/87)

*U.S. GPO: 2000-468-987/39595

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657

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number: FLEX 2406

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	22	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	22 minus 20=	* 2
INDEPENDENT CLAIMS	3 minus 3 =	* 0
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☒		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=	18	OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL	388	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

NOTICE OF FEE DUE

DATE: 01-28-02

TO: Utility

FROM: Office of Initial Patent Examination

SUBJECT: Fee Due

APPLICATION NUMBER: 10053651



A fee is due for the attached document submitted to the U. S. Patent and Trademark Office for the following reason. Please check the application for the appropriate authorization to charge a deposit account. If an authorization is present, please charge the appropriate fee. If an authorization is not present, notify the applicant of the fee deficiency.

☒ Insufficient fee by check

☐ Insufficient funds in deposit account

☐ Declined credit card

☐ Non authorization for charge to deposit account

☐ No fee submitted per requirement

The correct fee code: 203 x 2	amount	$ 18
The suspended fee code: 197	amount	- $
Fee Due	amount	=$ 18

If you have any questions, please contact Cynthia Streater at 703-306-5430 or Eleanor Kurtz at 703-308-3642.

Terminal Operator Thuy (Cvtruong1)

Lexmark, Exhibit 1002
Lexmark v. Flexiworld

CLAIMS ONLY

SERIAL NO.	FILING DATE
10053651	01-18-02
APPLICANT(S)	

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
1	1					
2		1				
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TOTAL IND.	3					
TOTAL DEP.	19					
TOTAL CLAIMS	22					

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	IND.	DEP.	IND.	DEP.	IND.	DEP.
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TOTAL IND.						
TOTAL DEP.						
TOTAL CLAIMS						

* *MAY BE USED FOR ADDITIONAL CLAIMS OR ADMENDMENTS*

FORM PTO-2022 (1-98)

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