DocCode – SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 17181996 Document Date: 02/22/2021

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via DAV or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.

Form Revision Date: March 1, 2019

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02350.CON3
	Application Number	
Title of Invention	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kourosh		Soroushian	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	San Diego	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	3758 Brookshire Street		
Address 2			
City	San Diego	State/Province	CA
Postal Code	92111	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	71897		
Email Address	pair@kppb.com	Add Email	Remove Email

Application Information:

Title of the Invention	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels		
Attorney Docket Number	D1-02350.CON3	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	6	Suggested Figure for Publication (if any)	2

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02350.CON3
	Application Number	
Title of Invention	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	71897		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16/789303	2020-02-12

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02350.CON3
	Application Number	
Title of Invention	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	

Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/789303	Continuation of	15/922198	2018-03-15	10645429	2020-05-03
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15/922198	Continuation of	13/600046	2012-08-30	9955195	2018-04-24
Prior Application Status	Expired		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
13/600046	Claims benefit of provisional	61/529201	2011-08-30		

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02350.CON3
	Application Number	
Title of Invention	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02350.CON3
	Application Number	
Title of Invention	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	DIVX, LLC

Mailing Address Information For Applicant:

Address 1	4350 La Jolla Village Drive		
Address 2	Suite 950		
City	San Diego	**State/Province**	CA
Country	US	Postal Code	92122
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02350.CON3
	Application Number	
Title of Invention	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	DIVX, LLC

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	4350 La Jolla Village Drive		
Address 2	Suite 950		
City	San Diego	**State/Province**	CA
Country	US	Postal Code	92122
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Paul J. Lee/			Date (YYYY-MM-DD)	2021-02-22
First Name	Paul	Last Name	Lee	Registration Number	69,375

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	D1-02350.CON3
	Application Number	
Title of Invention	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

ABSTRACT OF THE DISCLOSURE

Systems and methods for streaming and playing back video having a variety of resolutions, frame rates, and/or sample aspect ratios, where the video streams are encoded at one of a number of maximum bit rate levels, in accordance with embodiments of the invention are disclosed. One embodiment includes a processor, and storage containing data relating combinations of resolution and frame rates to maximum bitrates, where a plurality of resolution and frame rates that are related to the same maximum bitrate form a maximum bitrate level. In addition, an encoding application configures the processor to encode a video stream as a plurality of video streams having different resolutions and frame rates, where the target maximum bitrate used during the encoding is selected based upon the maximum bitrate levels of the resolution and frame rate combinations indicated within the data relating combinations of resolution and frame rates to maximum bitrates.

Amazon/DivX
Exhibit 1002
Page 9

WHAT IS CLAIMED IS:

1. A content distribution system comprising:

a set of one or more encoding servers, wherein each server of the set of encoding servers comprises:

a non-volatile storage containing an encoder application; and

at least one processor;

wherein the encoder applications cause the set of encoding servers to encode source content as a set of streams that are each stored in separate container files, each container files comprising a set of one or more alternative video streams, each having a frame rate and a bitrate, by causing the processor to perform the steps of:

identifying a plurality of sections of the source content;

identifying a plurality of resolution and frame rate combinations for encoding of video content;

determining an optimal target maximum bitrate for each of the received plurality of resolution and frame rate combinations, wherein an optimal target maximum bitrate is the lowest bitrate at which a highest video quality criterion is satisfied for a specific resolution and frame rate combination;

for each particular bitrate group of a plurality of bitrate groups:

identifying, based on a relationship between the optimal target maximum bitrates and the particular bitrate group, a set of resolution and frame rate combinations from the plurality of resolution and frame rate combinations;

for each particular section of the plurality of sections, encoding the particular section to produce a plurality of encodings of the particular section, wherein the plurality of encodings is encoded at one of the set of resolution and frame rate combinations and a bitrate associated with the particular bitrate group;

assembling the encodings of the plurality of sections for a given video stream from the plurality of alternative video streams a container file for each of the plurality of alternative video streams by:

assembling the encodings of the plurality of sections for a given

video stream from the plurality of alternative video streams into a video container file; and

generating entries in a container index within the video container file indicating sizes of portions of the given video stream within the video container file; and

uploading the container files for each of the plurality of alternative video streams to a set of servers that form part of a content distribution system.

Amazon/DivX
Exhibit 1002
Page 11

D1-02350.CON3

Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The current application is a continuation of U.S. Patent Application No. 16/789,303, filed February 12, 2020, which is a continuation of U.S. Patent Application No. 15/922,198, filed March 15, 2018 and issued May 5, 2020 as U.S. Patent No. 10,645,429, which is a continuation of U.S. Patent Application No. 13/600,046, filed August 30, 2012, and issued April 24, 2018 as U.S. Patent No. 9,955,195, which claims priority to U.S. Provisional Patent Application No. 61/529,201, filed August 30, 2011, the disclosures of which are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to the delivery of multimedia content, specifically streaming video content encoded at a variety of recommended maximum bitrates optimized for a variety of scaled display resolutions and network connection maximum data rates of playback devices receiving the streams.

BACKGROUND OF THE INVENTION

[0003] The term streaming media describes the playback of media on a playback device, where the media is stored on a server and continuously sent to the playback device over a network during playback. Typically, the playback device stores a sufficient quantity of media in a buffer at any given time during playback to prevent disruption of playback due to the playback device completing playback of all the buffered media prior to receipt of the next portion of media. Adaptive bitrate streaming or adaptive streaming involves detecting the present streaming conditions (e.g. the user's network bandwidth and CPU capacity) in real time and adjusting the quality of the streamed media accordingly.

[0004] In adaptive streaming systems, the source media is typically stored on a media server as a top level index file pointing to a number of alternate streams that contain the actual video and audio data. Each stream is typically stored in one or more

Amazon/DivX
Exhibit 1002
Page 12

container files. Different adaptive streaming solutions typically utilize different index and media containers. The Matroska container is a media container developed as an open standard project by the Matroska non-profit organization of Aussonne, France. The Matroska container is based upon Extensible Binary Meta Language (EBML), which is a binary derivative of the Extensible Markup Language (XML). Decoding of the Matroska container is supported by many consumer electronics (CE) devices. The DivX Plus file format developed by DivX, LLC of San Diego, California utilizes an extension of the Matroska container format, including elements that are not specified within the Matroska format.

SUMMARY OF THE INVENTION

[0005] Systems and methods in accordance with embodiments of the invention stream and play back video having a variety of resolutions, frame rates, and/or sample aspect ratios, where the video streams are encoded at one of a limited number of maximum bit rate levels. One embodiment includes a processor, and storage containing an encoding application and data relating combinations of resolution and frame rates to maximum bitrates, where a plurality of resolution and frame rates that are related to the same maximum bitrate form a maximum bitrate level. In addition, the encoding application configures the processor to encode a video stream as a plurality of video streams having different resolutions and frame rates, where the target maximum bitrate used during the encoding of the video streams is selected based upon the maximum bitrate levels of the resolution and frame rate combinations indicated within the data relating combinations of resolution and frame rates to maximum bitrates.

[0006] In a further embodiment, the resolution and frame rates within a maximum bitrate level have optimal target maximum bitrates that are within a predetermined percentage of the highest optimal target maximum bitrate of a resolution and frame rate combination within the maximum bitrate level.

[0007] In another embodiment, the optimal target maximum bitrate of a resolution and frame rate combination is determined using a formula.

Amazon/DivX
Exhibit 1002
Page 13

[0008] In a still further embodiment, the optimal target maximum bitrate of a resolution and frame rate combination is determined using experimentation.

[0009] In still another embodiment, the resolution and frame rates within a maximum bitrate level have optimal target maximum bitrates that are within a predetermined percentage of the optimal target maximum bitrate of at least one other resolution and frame rate combination within the maximum bitrate level.

[0010] In a yet further embodiment, the data relating combinations of resolution and frame rates to maximum bitrate levels relates the resolution and frame rates to maximum bitrates in the manner illustrated in FIG. 5.

[0011] Yet another embodiment includes a plurality of playback devices, where the playback devices have different display aspect ratios and utilize different types of network connections, and a streaming system comprising a plurality of servers on which a plurality of video streams are stored, where the plurality of video streams are encoded at different resolutions and frame rates. In addition, video streams stored on the streaming system are encoded using one of a plurality of maximum bitrate levels, where video streams having different resolutions and frame rates are encoded at the same maximum bitrate level, the playback devices are configured to support playback of video data encoded at maximum bitrates corresponding to a plurality of the maximum bitrate levels, the playback devices are configured to request video data from at least one video stream from the streaming system encoded at a maximum bitrate level supported by the playback device, and the playback devices are configured to playback video data encoded at a supported maximum bitrate level received from the streaming system.

[0012] A further embodiment again also includes a source encoder including storage containing data relating combinations of resolution and frame rates to maximum bitrate levels. In addition, the source encoder is configured to encode a video stream as a plurality of video streams having different resolutions and frame rates, where the target maximum bitrate used during the encoding of the video streams is selected based upon the maximum bitrate levels of the resolution and frame rate combinations indicated within the data relating combinations of resolution and frame rates to maximum bitrates levels.

Amazon/DivX
Exhibit 1002
Page 14

[0013] In another embodiment again, the data relating combinations of resolution and frame rates to maximum bitrate levels relates the resolution and frame rates to maximum bitrate levels in the manner illustrated in FIG. 5.

[0014] A further additional embodiment includes a machine readable medium containing processor instructions, where execution of the instructions by a processor causes the processor to perform a process for determining a set of maximum bitrate levels for encoding video data for use in a streaming system including playback devices having different display aspect ratios and network connections. In addition, the process includes selecting a set of resolution and frame rate combinations, determining the optimal target maximum bitrate for encoding a stream of video data at each resolution and frame rate combination, grouping the resolution and frame rate combinations into maximum bitrate levels based upon the optimal target maximum bitrates of the resolution and frame rate combinations utilizing at least one grouping criterion, and determining a target maximum bitrate for the resolution and frame rate combinations in a maximum bitrate level.

[0015] In another additional embodiment, the optimal target maximum bitrate of a resolution and frame rate combination is determined using a formula.

[0016] In a still yet further embodiment, the optimal target maximum bitrate of a resolution and frame combination is determined using experimentation.

[0017] In still yet another embodiment, the at least one grouping criterion groups resolution and frame rates within a maximum bitrate level that have optimal target maximum bitrates that are within a predetermined percentage of the highest optimal target maximum bitrate of a resolution and frame rate combination within the maximum bitrate level.

[0018] In a still further embodiment again, the at least one grouping criterion groups resolution and frame rates within a maximum bitrate level that have optimal target maximum bitrates that are within a predetermined percentage of the optimal target maximum bitrate of at least one other resolution and frame rate combination within the maximum bitrate level.

Amazon/DivX
Exhibit 1002
Page 15

[0019] In still another embodiment again, determining a target maximum bitrate for the resolution and frame rate combinations in a maximum bitrate level includes selecting the maximum optimal target bitrate of a resolution and frame rate combination within the maximum bitrate level.

[0020] In a still further additional embodiment, determining a target maximum bitrate for the resolution and frame rate combinations in a maximum bitrate level includes selecting the minimum optimal target bitrate of a resolution and frame rate combination within the maximum bitrate level.

[0021] In still another additional embodiment, determining a target maximum bitrate for the resolution and frame rate combinations in a maximum bitrate level includes selecting the average optimal target bitrate of the resolution and frame rate combinations within the maximum bitrate level.

[0022] A yet further embodiment again also includes rounding the average optimal target bitrate using a predetermined rounding function.

[0023] In yet another embodiment again, determining a target maximum bitrate for the resolution and frame rate combinations in a maximum bitrate level includes selecting one of a plurality known network data rates based upon the optimal target data rate of at least one of the resolution and frame rate combinations within the maximum bitrate level.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] FIG. 1 is a network diagram of a level bitrate adaptive streaming system in accordance with an embodiment of the invention.

[0025] FIG. 2 conceptually illustrates a playback device configured to deliver video data encoded utilizing target maximum bitrate levels in accordance with an embodiment of the invention.

[0026] FIG. 3 is a flow chart illustrating a process for determining a set of bitrates given video data in accordance with an embodiment of the invention.

[0027] FIG. 4 is a flow chart illustrating a process for determining a set of encoding maximum bitrate levels in accordance with an embodiment of the invention.

Amazon/DivX
Exhibit 1002
Page 16

[0028] FIG. 5 is a table illustrating an example of a set of resolutions with encoded bitrates matched to maximum profile bitrates in accordance with an embodiment of the invention.

[0029] FIG. 6 is a table illustrating an example of sets of resolutions for different aspect ratios, where the resolutions in each set are encoded so that each aspect ratio is encoded at a resolution falling within each of the maximum bitrate levels in accordance with an embodiment of the invention.

DETAILED DISCLOSURE OF THE INVENTION

[0030] Turning now to the drawings, systems and methods for streaming and playing back video having a variety of resolutions, frame rates, and/or sample aspect ratios, where the video streams are encoded at one of a limited number of maximum bit rate levels, in accordance with embodiments of the invention are illustrated. Video data is typically encoded to achieve a target maximum bitrate. The quality of video encoded with a specific resolution, and frame rate typically does not improve appreciably beyond a specific maximum bitrate threshold. Beyond that threshold, increasing the resolution of the encoded video can increase video quality. A formula can be used to recommend an optimal target maximum bitrate at which to encode video content at a specific resolution and frame rate efficiently and with the highest video quality achievable at the selected resolution. Alternatively, the bitrate threshold at which video quality does not appreciably improve can be determined through testing. While it can be beneficial to determine the optimal maximum bitrate at which to encode a specific piece of video content to efficiently achieve the highest quality video at a specific resolution and frame rate, the delivery of a large number of streams of video content to a large variety of playback devices can be simplified by specifying a limited number of maximum bitrates at which video can be encoded irrespective of the optimal target maximum bitrate for a specific frame rate and resolution combination. The ability of a specific type of playback device to playback video encoded at a specific maximum bitrate is typically confirmed via testing. Therefore, the smaller the number of maximum bitrate levels supported by a streaming system, the simpler the process of testing each playback device to confirm its

Amazon/DivX
Exhibit 1002
Page 17

ability to playback video encoded at supported target maximum bitrates. Accordingly, streaming systems can utilize a set of maximum bitrate levels to simply the process of certifying playback devices for use within the streaming system. When video is encoded for distribution via the streaming system at a number of different resolutions and frame rates, the maximum bitrate levels appropriate to each of the specific resolution and frame combinations can be selected and used as the target maximum bitrates when encoding the streams of video data.

[0031] In several embodiments, the process of selecting a set of maximum bitrate levels to use when encoding video for distribution via a streaming system involves determining the most popular aspect ratios and frame rates for video content and then determining all of the streaming resolutions and frame rates at which the video content will be encoded. When the most likely resolution and frame rate combinations are identified, the optimal target maximum bitrates for each resolution and frame rate combination can be determined using an appropriate bitrate formula or testing. Bitrate formulas that can be utilized to determine a optimal target maximum bitrate at which to encode video at a specified resolution and frame rate are discussed in U.S. Patent Application Serial No. 13/432,521 entitled "Systems and Methods for Encoding Alternative Streams of Video for Playback on Playback Devices having Predetermined Display Aspect Ratios and Network Connection Maximum Data Rates", to Soroushian et al., filed March 28, 2012 (the disclosure of which is incorporated by reference herein in its entirety). The optimal target maximum bitrates can then be grouped into levels and a maximum bitrate determined for each level.

[0032] In several embodiments, the resolution and frame rate combinations can be grouped into levels based upon their corresponding optimal target maximum bitrates so that all optimal target maximum bitrates within a group are within a predetermined percentage of the highest optimal target maximum bitrate within the group. In many embodiments, the resolution and frame rate combinations can be grouped into levels based upon their corresponding optimal target maximum bitrates so that each optimal target maximum bitrate within the group is within a predetermined percentage of the next highest optimal target maximum bitrate within the group. In other embodiments,

any of a variety of grouping criteria can be utilized in accordance with embodiments of the invention including criteria that group resolution and frame rate combinations into a predetermined number of groups based upon their optimal target maximum bitrates.

[0033] The maximum bitrate that is assigned to the resolution and frame rate combinations at a level can be determined in any number of different ways including (but not limited to) the average bitrate of the optimal target maximum bitrates included in the group, the minimum bitrate of the optimal target maximum bitrates included in the level, and/or a typical network connection data rate that is close to one or more of the target maximum bitrates in the level. The maximum bitrate determined for each level can then be used to encode content at the resolution and frame rate combinations within the level. In several embodiments, the process of determining the maximum bitrate levels is performed in a first process and the maximum bit rate levels and the resolution and frame rate combinations that fall within each level can be provided to a source encoding system for use in the encoding of video content.

[0034] In many embodiments, the streaming system is an adaptive bitrate streaming system. Adaptive bitrate streaming systems can stream alternative streams of video data encoded at maximum bitrates. In order to provide the highest quality video experience independent of the network data rate, the adaptive bitrate streaming systems switch between the available streams of video data throughout the delivery of the video data according to a variety of factors, including, but not limited to, the available network data rate and video decoder performance. Systems and methods for switching between video streams during playback are disclosed in U.S. Patent Application Serial No. 13/221,682 entitled "Systems and Methods for Adaptive Bitrate Streaming of Media Stored in Matroska Container Files Using Hypertext Transfer Protocol" to Braness et al., filed August 30, 2011, the disclosure of which is incorporated by reference herein in its entirety. In adaptive bitrate streaming systems, a number of alternative streams are likely to be encoded having the same aspect ratio, but different resolutions. Systems and methods for selecting the resolutions at which to encode alternative streams of video for use in adaptive bitrate streaming systems are described in U. S. Patent Application Serial No. 13/430,032 entitled "Selection of Resolutions for

Seamless Resolution Switching of Multimedia Content" to Soroushian et al., filed March 26, 2012 (the disclosure of which is incorporated by reference herein in its entirety). Although much of the discussion that follows references adaptive bitrate streaming systems, systems and methods in accordance with embodiments of the invention can be utilized in streaming systems that are non-adaptive. Systems and methods for streaming video at a plurality of resolution and frame rates using a smaller set of maximum bit rate levels in accordance with embodiments of the invention are discussed further below.

System Overview

[0035] A streaming system in accordance with an embodiment of the invention is illustrated in FIG. 1. The streaming system 100 includes a source encoder 106 configured to encode source video as a number of alternative video streams. Alternative streams are streams that encode the same media content in different ways. In many instances, alternative streams encode media content (such as but not limited to video) at different resolution and sample aspect ratio combinations and different maximum bitrates. In a number of embodiments, alternative video streams form sets of alternative video streams encoded with the same aspect ratio corresponding to the display aspect ratio of a set of playback devices. In many embodiments, the source encoder possesses a lookup table that indexes resolution and frame rate combinations to a predetermined set of maximum bitrate levels. The source encoder uses the lookup table to determine the target maximum bitrate at which to encode video at a specific resolution and frame rate combination.

[0036] In many embodiments, the streaming system is an adaptive bitrate streaming system and the source encoder encodes each alternative stream into a separate container file and generates a top level index file describing each of the streams contained within the container files. The top level index file and the container files are uploaded to an HTTP server 104. In other embodiments, the container files are uploaded to an HTTP server 104 and the top level index file is dynamically generated in response to a request for a specific piece of content by a playback device. In the

illustrated embodiment, the source encoder is a server. In other embodiments, the source encoder can be any processing device including a processor and sufficient resources to perform the transcoding of source media (including but not limited to video, audio, and/or subtitles).

[0037] In the illustrated embodiment, playback devices include personal computers 110, CE players 108, and mobile phones 112. In other embodiments, playback devices can include consumer electronics devices such as DVD players, Blu-ray players, televisions, set top boxes, video game consoles, tablets, and other devices that are capable of connecting to a server via HTTP and playing back encoded media. In the illustrated embodiment, a variety of playback devices use HTTP or another appropriate stateless protocol to request portions of a top level index file and the container files via a network 102 such as the Internet. Prior to a playback device performing adaptive bitrate streaming using portions of media from alternative streams contained within the container files, a bandwidth probe can be performed by the playback device to determine available bandwidth. Once the bandwidth probe has been completed, the playback device can utilize data within the top level index including (but not limited to) the maximum bitrate of each of the available streams to determine the initial streams from which to commence requesting portions of encoded media as part of an adaptive streaming process.

[0038] Once playback of content from the initial set of streams commences, the playback device utilizes the top level index to perform adaptive bitrate streaming of the content in response to changes in streaming conditions. In many adaptive bitrate streaming systems, the playback device can progress through a series of operational phases in which the playback device responds differently in each phase to changes in the streaming conditions. In a number of embodiments, stability in streaming conditions or improving streaming conditions can result in a transition to a phase in which the playback device assumes stable operating conditions, buffers more content, and is less responsive to fluctuations in streaming conditions. In many embodiments, a deterioration in streaming conditions results in a stream switch to a set of streams at a lower resolution utilizing less bandwidth and resulting in the playback device

transitioning to a phase in which the playback device assumes unstable operating conditions, buffers less content, and responds rapidly to variations in streaming conditions.

Source Encoders

[0039] Source encoders in accordance with embodiments of the invention are utilized to encode source content at any of a number of resolutions and frame rates at target maximum bitrates determined using a set of predetermined maximum bitrate levels. The basic architecture of a source encoder in accordance with an embodiment of the invention is illustrated in FIG. 2. The source encoder 150 includes a processor 152 in communication with memory 154. In the illustrated embodiment, the memory 154 includes an encoding application 156, video data 158, which can include (but is not limited to) source video data and encoded alternative streams of video data, and data describing the target maximum bitrates at which to encode a plurality of resolution and frame rate combinations 160. In many embodiments, the target maximum bitrates are selected from a set of predetermined maximum bitrate levels that includes a number of levels that is smaller than the number of resolution and frame rate combinations. In certain embodiments, a plurality of resolution and frame rate combinations is associated with each of a plurality of maximum bitrate levels. In several embodiments, the data concerning target maximum bitrate levels is a lookup table that is indexed by resolution and frame rate combinations and associates specific maximum bitrate levels with specific resolution and frame rate combinations. In other embodiments, any of a variety of data structures can be utilized to identify a target maximum bitrate from a predetermined set of target maximum bitrates to utilize in the encoding of a specific resolution and frame rate combination.

[0040] Although a specific architecture is illustrated in FIG. 2, any of a variety of architectures including architectures where the application and/or set of predetermined maximum bitrate levels are located on disk or some other form of storage and is loaded into memory at runtime can be utilized to implement a source encoder in accordance with an embodiment of the invention. Furthermore, any of a variety of system

Amazon/DivX
Exhibit 1002
Page 22

architectures including (but not limited) to the system architecture illustrated in FIG. 1 can be utilized to perform video delivery in accordance with embodiments of the invention. Systems and methods for determining a predetermined set of maximum bitrate levels at which to encode video at a plurality of resolution and frame combinations in accordance with embodiments of the invention are discussed further below.

Determining Target Maximum Bitrates

[0041] The initial step in determining a set of predetermined bitrates at which to encode video is determining the characteristics of the video that is likely to be streamed by a streaming system. Once the resolution and frame rate combinations of the video that is likely to be streamed are identified, the optimal target maximum bitrate of each resolution and frame rate combination can be calculated and the results used to determine a set of maximum bitrate levels at which video can be encoded for different resolution and frame rate combinations. The term optimal target maximum bitrate can be used to describe the maximum bitrate beyond which video quality at a specific resolution and frame rate does not appreciably increase. Stated another way, the optimal target maximum bitrate is the lowest bitrate at which the highest quality video can be achieved at a given resolution and frame rate. In using a term such as optimal target maximum bitrate, there is typically an acknowledgement that video quality is subjective. Therefore, there is no concept of a "true" optimal target maximum bitrate. The optimal target maximum bitrate is simply a value that can be determined through subjective experimentation. In many instances, observations concerning target maximum bitrates have resulted in the definition of functions that can be utilized to calculate an optimal target maximum bitrate based upon the resolution and frame rate. As is discussed further below, the technique for determining an optimal target maximum bitrate is not as important as the manner in which that maximum bitrates are utilized to select maximum bitrate levels.

[0042] A process for determining optimal target maximum bitrates for video streamed within an adaptive bitrate streaming system in accordance with embodiments of the

Amazon/DivX
Exhibit 1002
Page 23

invention is illustrated in FIG. 3. The process 200 commences by selecting 210 display aspect ratios and frame rates supported by the streaming system. The display aspect ratios and frame rates are typically determined based upon popular display aspect ratios and frame rates supported by playback devices that are likely to be used to stream video within the streaming system. Resolutions can be determined 212 based upon the selected display aspect ratios and, in many instances, based upon anticipated maximum data rates supported within the streaming system. Processes for determining resolutions at which to encode alternative video streams based upon the display aspect ratio of a playback device are described in U.S. Patent Application No. 13/430,032 entitled "Selection of Resolutions for Seamless Resolution Switching of Multimedia Content" to Soroushian et al., filed March 26, 2012 (incorporated by reference above).

[0043] An optimal target maximum bitrate is determined (214) for each selected frame rate and resolution combination. In several embodiments, maximum bitrate targets are determined 214 utilizing a bitrate formula where the bitrate formula may utilize various aspects of the video data, including frame rate, resolution, and other pertinent information as input. Examples of appropriate bitrate formulas are described in U.S. Patent Application No. "Systems and Methods for Encoding Alternative Streams of Video for Playback on Playback Devices having Predetermined Display Aspect Ratios and Network Connection Maximum Data Rates", to Soroushian et al., filed March 28, 2012 (incorporated by reference above). In a number of embodiments, the determination (214) of the optimal target maximum bitrate for a specific resolution and frame rate combination may involve subjective or objective quality evaluation methods of the video data encoded at the target maximum bitrate. Once the optimal target maximum bitrates for each of the resolution and frame rate combinations is determined, a process can then be performed to identify a set of maximum bitrate can be selected based upon the optimal target maximum bitrates. Processes for determining a set of maximum bitrate levels based upon a set of optimal target maximum bitrates associated with specific resolution and frame rate combinations in accordance with embodiments of the invention are discussed below.

Generating Sets of Maximum Bitrate Levels

[0044] A process for determining a set of maximum bitrate levels based upon a set of optimal target maximum bitrates associated with specific resolution and frame rate combinations in accordance with an embodiment of the invention is illustrated in FIG. 4. The process 300 involves setting (310) the current bitrate to the highest optimal target maximum bitrate from a set of optimal target maximum bitrates. The level maximum bitrate is updated (312) utilizing the current bitrate. In many embodiments, the level maximum bitrate may be set to the average, median, minimum, or maximum combination of the bitrates in the current bitrate level. In a number of embodiments, the level average bitrate is a linear or non-linear combination of the bitrates in the current bitrate level. In other embodiments, the level maximum bitrate can be determined after all of the levels are identified.

[0045] The current bitrate is compared (314) to the next lower optimal target maximum bitrate in the input set of optimal target maximum bitrates. A decision (316) is then made. Given a threshold value, if the difference between the current bitrate and the next lower optimal target maximum bitrate does not exceed the threshold value, the current bitrate is included in the optimal maximum bitrate level. In other embodiments, any of a variety of criteria can be utilized to determine whether to include a specific resolution and frame rate combination in a level based upon the optimal target maximum bitrate for the resolution and frame combination. Accordingly, the current bitrate is set (318) to the next lower optimal target maximum bitrate and the process loops back to updating (312) the level maximum bitrate. In several embodiments, the threshold value is a percentage difference between consecutive bitrate levels, such as 10%. In several embodiments, the threshold value is a fixed value or is related in a non-linear manner to the value of the current bitrate. If the threshold value is exceeded, the level maximum bitrate is recorded (320) in the set of maximum bitrate levels. In several embodiments, the level bitrate level is rounded to the closest whole number. Another decision (322) is made. If target maximum bitrates remain to be considered, a new level bitrate is started (324), the current bitrate is set (318) to the next highest optimal target maximum bitrate, and the process continues updating (312) the level

maximum bitrate of the new level. The process 300 is complete when all bitrates have been considered.

[0046] In a number of embodiments, the maximum bitrate levels and the resolutions and frame rates assigned to specific groups can be modified in accordance with the requirements of a specific application. For example, the optimal maximum bitrate at each level can be rounded down (or up) to the closest whole-number multiple of 10, 100 or 1000. Although a specific process is illustrated in FIG. 4, any of a variety of processes can be utilized including a process that groups resolution and frame rate combinations into a predetermined number of levels based upon one or more criteria including (but not limited to) maximizing the similarity of the optimal target maximum bitrates of the resolution and frame combinations at each level.

[0047] An example of a grouping of a set of maximum bitrate levels defined based on the resolution, and frame rate of encoded video in accordance with an embodiment of the invention is illustrated in FIG. 5.

[0048] For example, in many embodiments of the invention 1440x816 is a sub-resolution for video data having a primary resolution of 1920x816 at 24 frames per second with a sample aspect ratio of 4:3. Likewise, the resolution 1440x800 is a sub-resolution for video data having a primary resolution of 1920x800 at 24 frames per second with a sample aspect ratio of 4:3. The encoded maximum bitrate of the 1440x816 video is 3,557 Kbps and the encoded maximum bitrate of the 1440x800 video is 3,459 Kbps. In several embodiments, 1440x816 and 1440x800 are within a threshold value of each other and no other resolutions are within the threshold value. The average bitrate for these resolutions is 3,508 Kbps, rounded to 3,500 Kbps. In accordance with an embodiment of the invention, 3,500 Kbps will be one maximum bitrate in the set of maximum profile bitrates.

[0049] In order to stream video content at each maximum bitrate level, a variety of resolutions may be utilized depending on the sample aspect ratio and frame rate of the source content. An example profile of recommended resolutions based on the frame rate and primary aspect ratio of the video content for various maximum bitrates is illustrated in FIG. 6. In many embodiments of the invention, the same resolution may be

Amazon/DivX
Exhibit 1002
Page 26

utilized for multiple frame rates and sample aspect ratios in order to maximize the subjective and/or objective quality of the streamed video data.

[0050] Although the present invention has been described in certain specific aspects, many additional modifications and variations would be apparent to those skilled in the art. It is therefore to be understood that the present invention may be practiced otherwise than specifically described, including playback devices where the set of streaming switching conditions utilized by the playback device are continuously changing, without departing from the scope and spirit of the present invention. Thus, embodiments of the present invention should be considered in all respects as illustrative and not restrictive. Accordingly, the scope of the invention should be determined not by the embodiments illustrated, but by the appended claims and their equivalents.

Amazon/DivX
Exhibit 1002
Page 27

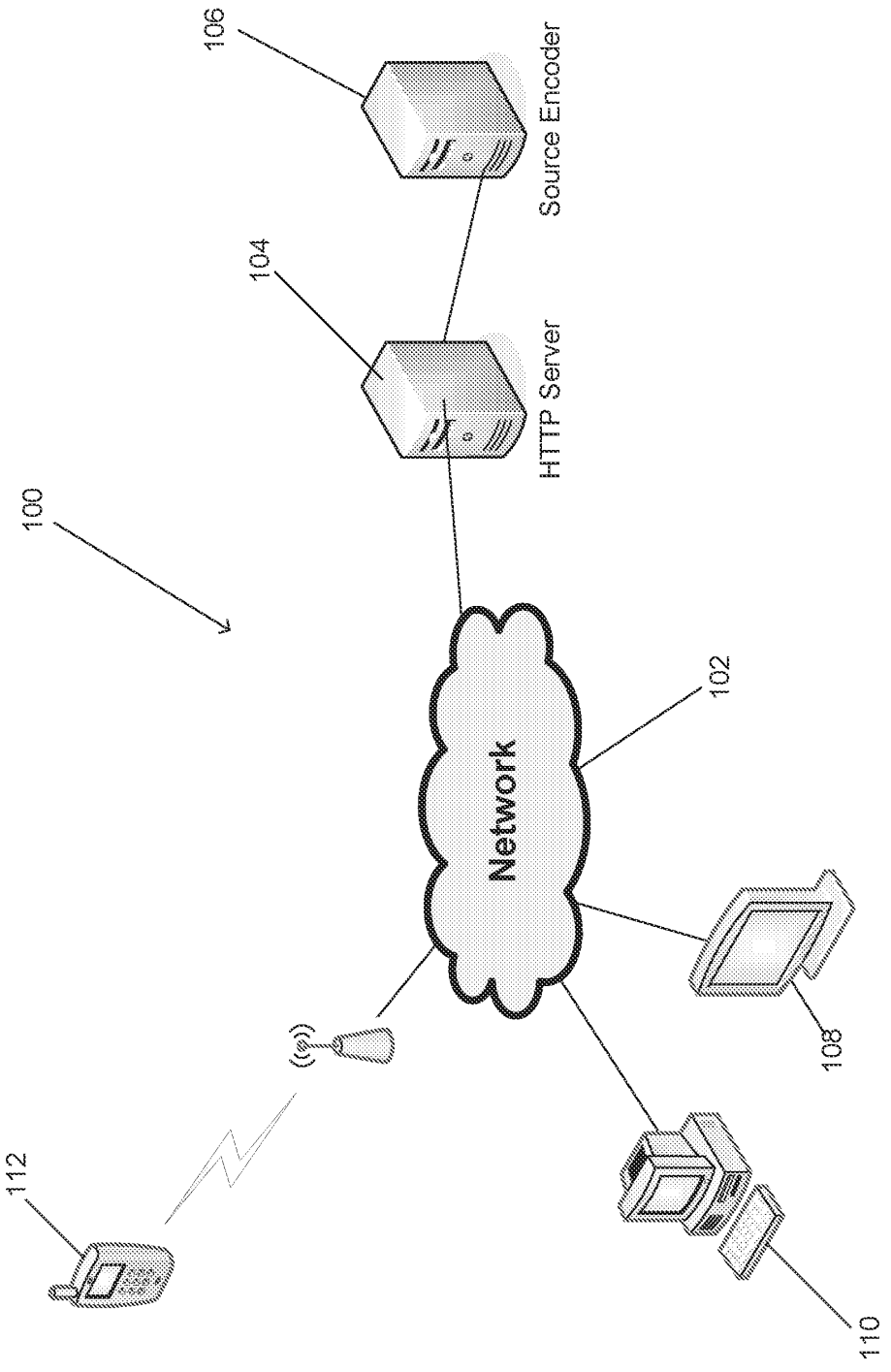

106
Source Encoder
104
HTTP Server
100
Network
102
108
112
110

FIG. 1

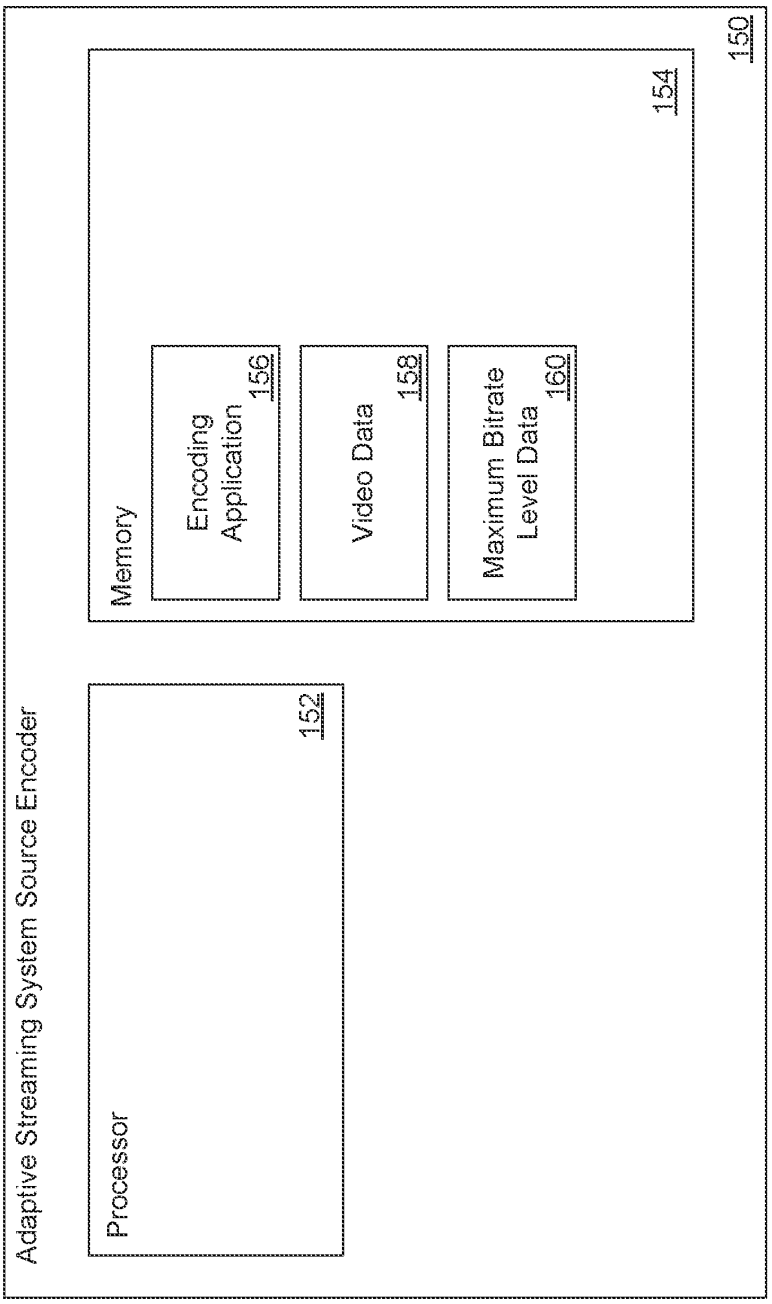

Adaptive Streaming System Source Encoder
150
Processor
152
Memory
154
Encoding Application
156
Video Data
158
Maximum Bitrate Level Data
160

FIG. 2

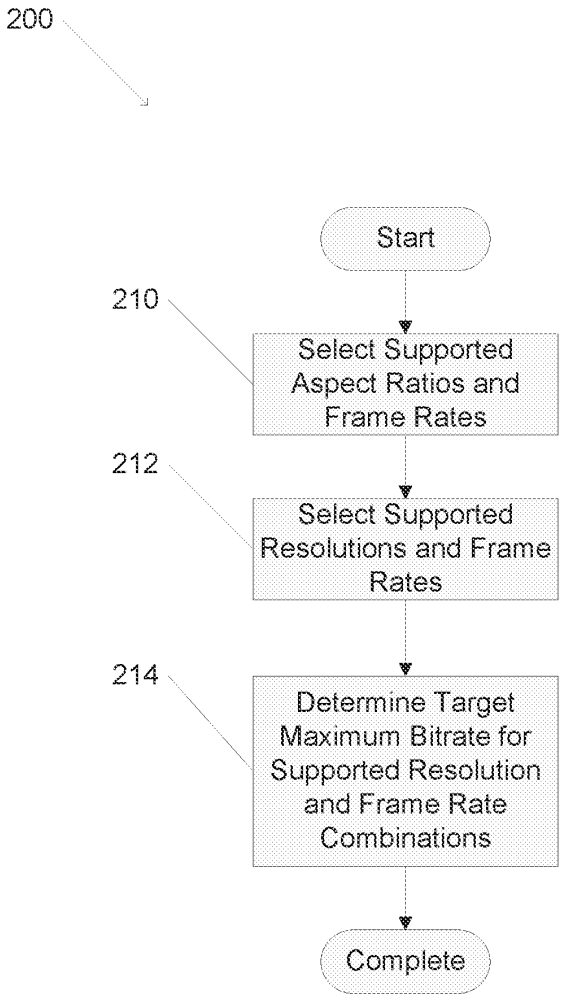

200
Start
210
Select Supported Aspect Ratios and Frame Rates
212
Select Supported Resolutions and Frame Rates
214
Determine Target Maximum Bitrate for Supported Resolution and Frame Rate Combinations
Complete

FIG. 3

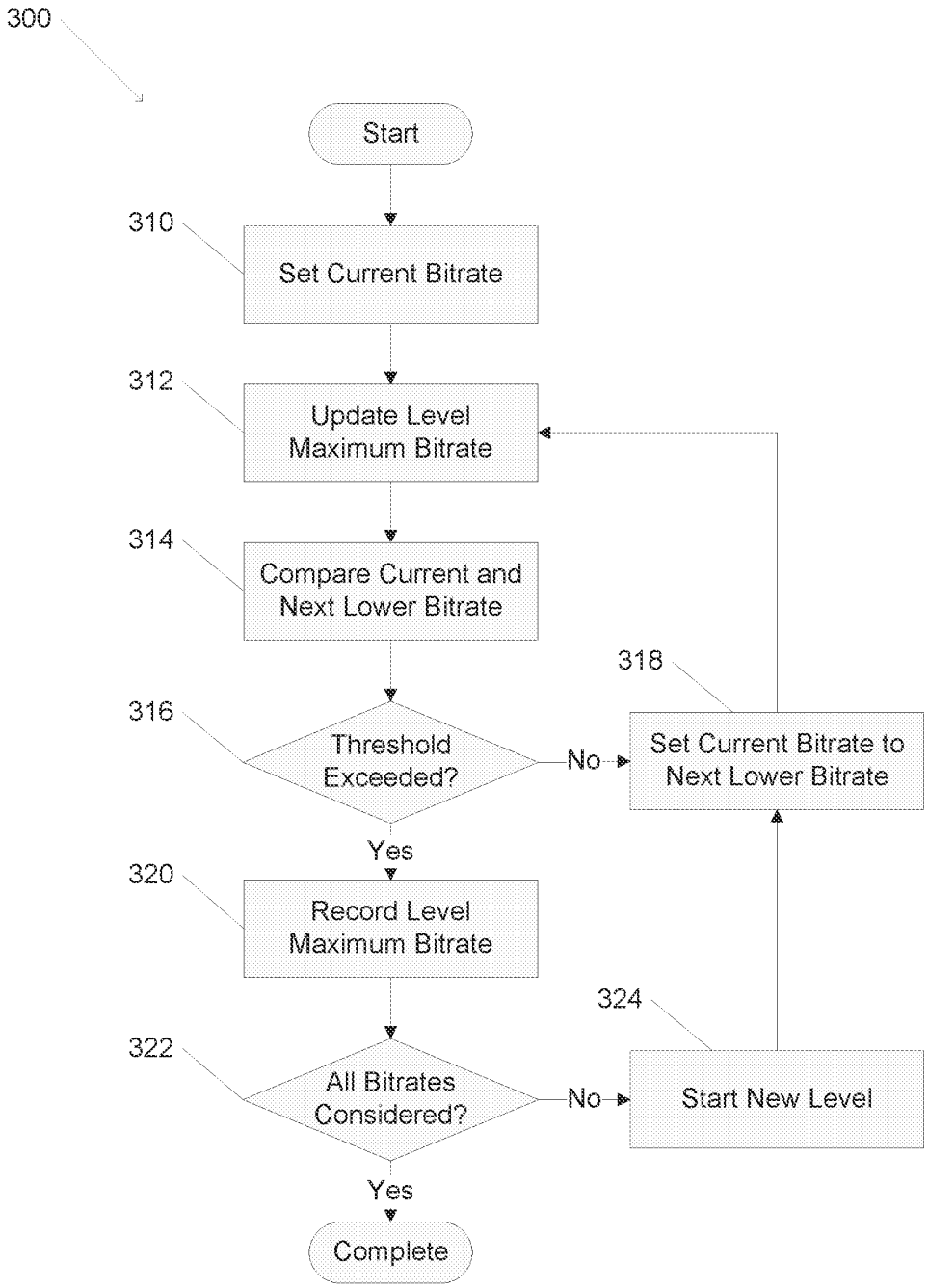

300
Start
310
Set Current Bitrate
312
Update Level Maximum Bitrate
314
Compare Current and Next Lower Bitrate
316
Threshold Exceeded?
No
318
Set Current Bitrate to Next Lower Bitrate
Yes
320
Record Level Maximum Bitrate
322
All Bitrates Considered?
No
324
Start New Level
Yes
Complete

FIG. 4

500

Actual Resolution	DivX Plus Bitrate	Final Resolution	Frames Per Second	Level	Average Bitrate for Level	Maximum Profile Bitrate
1920x1080	8969	1920x1080	30	9	8435	8400
1920x1080	8482	1920x1080	25			
1920x1040	7854	1920x1040	24			
1440x1080	5747	1920x1080	30	8	5378	5300
1440x1080	5438	1920x1080	25			
1920x816	5406	1920x816	24			
1920x800	5248	1920x800	24			
1440x1040	5053	1920x1040	24			
1440x816	3557	1920x816	24	7	3508	3500
1440x800	3459	1920x800	24			
1280x720	2736	1920x1080	30	6	2666	2400
1280x720	2596	1920x1080	25			
960x720	1895	1920x1080	30	5	1742	1750
1152x624	1860	1920x1040	24			
960x720	1802	1920x1080	25			
1280x544	1789	1920x816	24			
1152x480	1366	1920x800	24			
960x544	1281	1920x816	24	4	1144	1200
960x520	1220	1920x1040	24			
960x400	931	1920x800	24			
768x432	857	1920x1080	30	3	796	800
768x432	822	1920x1080	25			
768x416	783	1920x1040	24			
720x408	720	1920x816	24			
768x320	600	1920x800	24	2	600	600
576x312	456	1920x1040	24	1	418	400
640x272	445	1920x816	24			
512x288	407	1920x1080	30			
512x288	400	1920x1080	25			
576x240	382	1920x800	24			

FIG. 5

600

Streaming Bitrate	Aspect Ratio, Frames Per Second				
	16:9, 29.97 or 30	16:9, 25	1.85:1, 23.976 or 24	2.35:1, 23.976 or 24	2.4:1, 23.976 or 24
400	768x432	768x432	768x416	768x328	768x320
600	768x432	768x432	768x416	768x328	768x320
800	768x432	768x432	768x416	768x328	768x320
1200	768x432	768x432	768x416	768x328	768x320
1750	1280x720	1280x720	1152x624	1280x544	1152x480
2400	1280x720	1280x720	1152x624	1280x544	1152x480
3500	1920x1080	1920x1080	1920x1040	1920x816	1920x800
5300	1920x1080	1920x1080	1920x1040	1920x816	1920x800
8400	1920x1080	1920x1080	1920x1040	1920x816	1920x800

FIG. 6

Electronic Acknowledgement Receipt	
EFS ID:	41988197
Application Number:	17181996
International Application Number:	
Confirmation Number:	1105
Title of Invention:	Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels
First Named Inventor/Applicant Name:	Kourosh Soroushian
Customer Number:	71897
Filer:	Paul Joon Lee/Tess Langseth-DePaolis
Filer Authorized By:	Paul Joon Lee
Attorney Docket Number:	D1-02350.CON3
Receipt Date:	22-FEB-2021
Filing Date:	
Time Stamp:	19:20:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	02350con3ads.pdf	102173 e369548e8fb05bd85d6332dc3ba5cb810c4f8b7f	no	7
Warnings:					

Information:					
This is not an USPTO supplied ADS fillable form					
2		02350con3spec.pdf	129312 5b8f318ba37670f344c857242f49580f016b6020	yes	19

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Abstract	19	19
Claims	17	18
Specification	1	16

Warnings:					
Information:					
3	Drawings-only black and white line drawings	02350con3drawings.pdf	205513 b8da0aa70dab942e4d3b4408396b096e45f0fdf5	no	6
Warnings:					
Information:					
		Total Files Size (in bytes):	436998		

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.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/181,996

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	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	1 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*				x 480 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 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).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(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))	*	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	

AMENDMENT B

	(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 found in the appropriate box in column 1.

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	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/181,996	02/22/2021		0.00	D1-02350.CON3	1	1

CONFIRMATION NO. 1105

FILING RECEIPT

71897
KPPB LLP
2190 S. Towne Centre Place
Suite 300
Anaheim, CA 92806

OC000000123801331

Date Mailed: 03/05/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Kourosh Soroushian, San Diego, CA;

Applicant(s)

DIVX, LLC, San Diego, CA;

Assignment For Published Patent Application

DIVX, LLC, San Diego, CA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 16/789,303 02/12/2020 PAT 10931982
which is a CON of 15/922,198 03/15/2018 PAT 10645429
which is a CON of 13/600,046 08/30/2012 PAT 9955195
which claims benefit of 61/529,201 08/30/2011

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 03/02/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/181,996**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No
Title

Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Amazon/DivX
Exhibit 1002
Page 40

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

U.S. PATENTS

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
		3919474		1975-11-11	Benson, Kenneth	
		4009331		1977-02-22	Goldmark et al.	
		4694357		1987-09-15	Rahman et al.	
		4802170		1989-01-31	Trottier, Lorne	
		4964069		1990-10-16	Ely, Joseph C.	
		4974260	A	1990-11-27	Rudak, Peter	
		5119474		1992-06-02	Beitel, Bradley J., et al.	
		5274758		1993-12-28	Beitel, Bradley J., et al.	
		5361332	A	1994-11-01	Yoshida et al.	
		5396497		1995-03-07	Veltman, Markus H.	
		5400401	A	1995-03-21	Wasilewski et al.	
		5404436	A	1995-04-04	Hamilton, Robert H.	
		5420801		1995-05-30	Dockter, Michael J., et al.	
		5420974		1995-05-30	Morris, James K., et al.	
		5471576		1995-11-28	Yee, Raymond L.	
		5487167		1996-01-23	Dinallo, Chris A., et al.	
		5533021		1996-07-02	Branstad, Mark W., et al.	
		5537408		1996-07-16	Branstad, Mark W., et al.	
		5539908		1996-07-23	Chen, Fetchi et al.	
		5541662		1996-07-30	Adams, Robert et al.	
		5574785	A	1996-11-12	Ueno et al.	
		5583652		1996-12-10	Ware, Malcohm S.	
		5600721	A	1997-02-04	Kitazato, Naohisa	
		5621794	A	1997-04-15	Matsuda, Masahiro et al.	
		5627936		1997-05-06	Prasad, Rama R.	
		5633472		1997-05-27	DeWitt, Frederick J., et al.	
		5642171		1997-06-24	Baumgartner et al.	
		5642338	A	1997-06-24	Fukushima, Yoshihisa et al.	
		5655117		1997-08-05	Goldberg et al.	
		5664044		1997-09-02	Ware, Malcolm S.	
		5675382		1997-10-07	Bauchspies	
		5675511		1997-10-07	Prasad, Rama R., et al.	
		5684542		1997-11-04	Tsukagoshi	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		5717394	A	1998-02-10	Schwartz et al.	
		5719786		1998-02-17	Nelson et al.	
		5745643		1998-04-28	Mishina, M.	
		5751280		1998-05-12	Abbott, Michael J.	
		5763800		1998-06-09	Rossum, David P., et al.	
		5765164		1998-06-09	Prasad et al.	
		5794018		1998-08-11	Vrvilo, Benjamin et al.	
		5805228	A	1998-09-08	Proctor et al.	
		5805700	A	1998-09-08	Nardone et al.	
		5813010	A	1998-09-22	Kurano, Tomoaki et al.	
		5822524		1998-10-13	Chen et al.	
		5828370		1998-10-27	Moeller et al.	
		5844575	A	1998-12-01	Reid, J. L.	
		5848217		1998-12-08	Tsukagoshi, I et al.	
		5854873	A	1998-12-29	Mori, Yoshihiro et al.	
		5903261		1999-05-11	Walsh, Bruce E., et al.	
		5907597		1999-05-25	Mark	
		5907658	A	1999-05-25	Murase, Kaoru et al.	
		5912710	A	1999-06-15	Fujimoto, Akihisa	
		5923869	A	1999-07-13	Kashiwagi, Yoshiichiro et al.	
		5956729		1999-09-21	Goetz et al.	
		5959690	A	1999-09-28	Toebes, VIII et al.	
		5990955	A	1999-11-23	Koz	
		6002834	A	1999-12-14	Hirabayashi, Masayuki et al.	
		6005621	A	1999-12-21	Linzer et al.	
		6009237	A	1999-12-28	Hirabayashi, Masayuki et al.	
		6016381	A	2000-01-18	Taira, Kazuhiko et al.	
		6031622	A	2000-02-29	Ristow et al.	
		6046778	A	2000-04-04	Nonomura et al.	
		6057832	A	2000-05-02	Lev, Eitan et al.	
		6065050		2000-05-16	DeMoney	
		6079566		2000-06-27	Eleftheriadis et al.	
		6157410		2000-12-05	Izumi, N. et al.	
		6169242		2001-01-02	Fay, Tudor C., et al.	
		6195388	B1	2001-02-27	Choi, Jae G., et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		6204883	B1	2001-03-20	Tsukagoshi, I	
		6246803	B1	2001-06-12	Gauch et al.	
		6266483	B1	2001-07-24	Okada, Tomoyuki et al.	
		6282320	B1	2001-08-28	Hasegawa, Akira et al.	
		6308005	B1	2001-10-23	Ando et al.	
		6320905	B1	2001-11-20	Konstantinides, Konstantinos	
		6330286	B1	2001-12-11	Lyons, P. W., et al.	
		6351538	B1	2002-02-26	Uz, K M.	
		6373803	B2	2002-04-16	Ando, Hideo et al.	
		6374144		2002-04-16	Viviani et al.	
		6395969		2002-05-28	Fuhrer	
		6415031	B1	2002-07-02	Colligan et al.	
		6430354	B1	2002-08-06	Watanabe, Kenji	
		6445877	B1	2002-09-03	Okada, Tomoyuki et al.	
		6453115	B1	2002-09-17	Boyle, William B.	
		6453116	B1	2002-09-17	Ando, Hideo et al.	
		6481012	B1	2002-11-12	Gordon et al.	
		6504873	B1	2003-01-07	Vehvilaeinen, Markku	
		6512883	B2	2003-01-28	Shim, Jae-seong et al.	
		6594699	B1	2003-07-15	Sahai, Anupam et al.	
		6614843	B1	2003-09-02	Gordon et al.	
		6654933	B1	2003-11-25	Abbott, Michael J., et al.	
		6658056	B1	2003-12-02	Duruöz, Cem I., et al.	
		6665835		2003-12-16	Gutfreund, Steven et al.	
		6671408		2003-12-30	Kaku, Junya	
		6690838	B2	2004-02-10	Zhou, Qinggang	
		6697568		2004-02-24	Kaku, Junya	
		6724944	B1	2004-04-20	Kalevo, Ossi et al.	
		6725281		2004-04-20	Zintel el a.	
		6751623	B1	2004-06-15	Basso, Andrea et al.	
		6807306	B1	2004-10-19	Girgensohn, Andreas et al.	
		6813437	B2	2004-11-02	Ando, Hideo et al.	
		6819394	B1	2004-11-16	Nomura et al.	
		6856997	B2	2005-02-15	Lee et al.	
		6859496	B1	2005-02-22	Boroczky, Lilla et al.	
		6871006	B1	2005-03-22	Oguz, Seyfullah H., et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		6912513	B1	2005-06-28	Candelore, Brant L.	
		6917652		2005-07-12	Lyu	
		6920179	B1	2005-07-19	Anand, R et al.	
		6931531	B1	2005-08-16	Takahashi, Toshiya	
		6944621	B1	2005-09-13	Collart, Todd R.	
		6944629	B1	2005-09-13	Shioi et al.	
		6956901	B2	2005-10-18	Boroczky, Lilla et al.	
		6957350	B1	2005-10-18	Demos	
		6970564	B1	2005-11-29	Kubota, Tatsuya et al.	
		6983079	B2	2006-01-03	Kim, Changick	
		6985588	B1	2006-01-10	Glick, B. J., et al.	
		6988144		2006-01-17	Luken et al.	
		7006757	B2	2006-02-28	Ando, Hideo et al.	
		7007170	B2	2006-02-28	Morten	
		7020287	B2	2006-03-28	Unger, Robert A.	
		7127155		2006-10-24	Ando et al.	
		7151832	B1	2006-12-19	Fetkovich, John et al.	
		7188183	B1	2007-03-06	Paul, Jyotirmoy et al.	
		7209892		2007-04-24	Galuten et al.	
		7212726	B2	2007-05-01	Zetts, John M.	
		7237061	B1	2007-06-26	Boic	
		7242772	B1	2007-07-10	Tehranchi, Babak	
		7274861	B2	2007-09-25	Yahata, Hiroshi et al.	
		7295673	B2	2007-11-13	Grab, Eric W., et al.	
		7330875		2008-02-12	Parasnis et al.	
		7340528	B2	2008-03-04	Noblecourt et al.	
		7349886	B2	2008-03-25	Morten et al.	
		7352956	B1	2008-04-01	Winter, Marco et al.	
		7356245		2008-04-08	Belknap et al.	
		7366788		2008-04-29	Jones et al.	
		7382879	B1	2008-06-03	Miller, Eric	
		7397853	B2	2008-07-08	Kwon, Do-kyoung et al.	
		7400679	B2	2008-07-15	Kwon, Do-kyoung et al.	
		7418132	B2	2008-08-26	Hoshuyama, Hideo	
		7457359	B2	2008-11-25	Mabey, D. L., et al.	
		7457415	B2	2008-11-25	Reitmeier, Glenn A., et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		7478325	B2	2009-01-13	Foehr, Oliver H.	
		7493018	B2	2009-02-17	Kim	
		7499930	B2	2009-03-03	Naka, Akiteru et al.	
		7499938	B2	2009-03-03	Collart, Todd	
		7546641	B2	2009-06-09	Robert, Arnaud et al.	
		7639921	B2	2009-12-29	Seo, Kang S., et al.	
		7640435	B2	2009-12-29	Morten	
		7711052	B2	2010-05-04	Hannuksela, Miska et al.	
		7728878	B2	2010-06-01	Yea et al., Sehoon	
		7853980	B2	2010-12-14	Pedlow, Jr L., et al.	
		7864186	B2	2011-01-04	Robotham, John S., et al.	
		7869691	B2	2011-01-11	Kelly, Declan P., et al.	
		7945143	B2	2011-05-17	Yahata, Hiroshi et al.	
		8023562	B2	2011-09-20	Zheludkov et al.	
		8046453	B2	2011-10-25	Olaiya, Oladipupo	
		8054880	B2	2011-11-08	Yu, Guoyao et al.	
		8131875		2012-03-06	Chen	
		8169916	B1	2012-05-01	Pai, Sukesh H., et al.	
		8225061	B2	2012-07-17	Greenebaum, Kenneth	
		8233768	B2	2012-07-31	Soroushian, K et al.	
		8243924	B2	2012-08-14	Chen, Hao-nong et al.	
		8249168	B2	2012-08-21	Graves, Hans W.	
		8270473	B2	2012-09-18	Chen, William et al.	
		8270819	B2	2012-09-18	Vannier, Eric	
		8286213	B2	2012-10-09	Seo, Kwang-deok	
		8289338	B2	2012-10-16	Priyadarshi, Shaiwal et al.	
		8311115	B2	2012-11-13	Gu, Chuang et al.	
		8312079	B2	2012-11-13	Newsome, Richard L., et al.	
		8321556	B1	2012-11-27	Chatterjee, Manjirnath et al.	
		8369421	B2	2013-02-05	Kadono, Shinya et al.	
		8386621	B2	2013-02-26	Park, Anthony N.	
		8396114	B2	2013-03-12	Gu, Chuang et al.	
		8456380	B2	2013-06-04	Pagan, William G.	
		8649669	B2	2014-02-11	Braness et al.	
		8683066	B2	2014-03-25	Hurst, Mark B., et al.	
		8767825	B1	2014-07-01	Wang, Huisheng et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		8768984	B2	2014-07-01	Priddle, Clinton et al.	
		8782268	B2	2014-07-15	Pyle, Harry et al.	
		RE45052		2014-07-29	Li, Adam	
		8818171		2014-08-26	Soroushian, Kourosh et al.	
		8819116	B1	2014-08-26	Tomay et al.	
		8832297	B2	2014-09-09	Soroushian et al.	
		8849950	B2	2014-09-30	Stockhammer, Thomas et al.	
		8914534	B2	2014-12-16	Braness, Jason et al.	
		9021119	B2	2015-04-28	Van Der Schaar et al.	
		9025659	B2	2015-05-05	Soroushian, Kourosh et al.	
		9038116	B1	2015-05-19	Knox, Christopher R., et al.	
		9197944	B2	2015-11-24	Reisner	
		9215466	B2	2015-12-15	Zhai, Jiefu et al.	
		9344721	B2	2016-05-17	Dikvall, Henrik	
		9350990	B2	2016-05-24	Orton-Jay et al.	
		9357210	B2	2016-05-31	Orton-Jay et al.	
		9467708		2016-10-11	Soroushian et al., Kourosh	
		9510031		2016-11-29	Soroushian et al., Kourosh	
		9571827	B2	2017-02-14	Su et al.	
		9661049	B2	2017-05-23	Gordon	
		9712890	B2	2017-07-18	Shivadas et al.	
		9955195	B2	2018-04-24	Soroushian	
		10148989	B2	2018-12-04	Amidei et al.	
		10645429	B2	2020-05-05	Soroushian	
		10708587	B2	2020-07-07	Soroushian et al.	
		10798143	B2	2020-10-06	Soroushian et al.	

U.S. PATENT APPLICATION PUBLICATIONS

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
		20010021276	A1	2001-09-13	Zhou, Qinggang	
		20010030710	A1	2001-10-18	Werner	
		20010052077	A1	2001-12-13	Fung, Henry T., et al.	
		20010052127	A1	2001-12-13	Seo, Kang S., et al.	
		20020034252	A1	2002-03-21	Owen et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		20020048450	A1	2002-04-25	Zetts, John M.	
		20020051494	A1	2002-05-02	Yamaguchi et al.	
		20020062313	A1	2002-05-23	Lee et al.	
		20020067432	A1	2002-06-06	Kondo, Satoshi et al.	
		20020076112	A1	2002-06-20	Devara, Kavitha V.	
		20020087569	A1	2002-07-04	Fischer, Uwe et al.	
		20020091665	A1	2002-07-11	Beek et al.	
		20020093571	A1	2002-07-18	Hyodo	
		20020094031	A1	2002-07-18	Ngai et al.	
		20020110193	A1	2002-08-15	Yoo et al.	
		20020118953	A1	2002-08-29	Kim, Jae-hyun	
		20020120498	A1	2002-08-29	Gordon et al.	
		20020135607	A1	2002-09-26	Kato, Motoki et al.	
		20020141503	A1	2002-10-03	Kobayashi, Hiroshi et al.	
		20020143413	A1	2002-10-03	Fay et al.	
		20020143547	A1	2002-10-03	Fay et al.	
		20020147980	A1	2002-10-10	Satoda	
		20020151992	A1	2002-10-17	Hoffberg et al.	
		20020154779	A1	2002-10-24	Asano, Tomoyuki et al.	
		20020161462	A1	2002-10-31	Fay, Todor J.	
		20020164024	A1	2002-11-07	Arakawa, Hiroshi et al.	
		20020169971	A1	2002-11-14	Asano, Tomoyuki et al.	
		20020180929	A1	2002-12-05	Tseng et al.	
		20020184159	A1	2002-12-05	Tadayon et al.	
		20020191112	A1	2002-12-19	Akiyoshi, Kozo et al.	
		20020191960	A1	2002-12-19	Fujinami et al.	
		20030001964	A1	2003-01-02	Masukura et al.	
		20030002577	A1	2003-01-02	Pinder, Howard G.	
		20030002578	A1	2003-01-02	Tsukagoshi et al.	
		20030005442	A1	2003-01-02	Brodersen et al.	
		20030035488	A1	2003-02-20	Barrau	
		20030044080	A1	2003-03-06	Frishman, Eyal et al.	
		20030053541	A1	2003-03-20	Sun, Shijun et al.	
		20030063675	A1	2003-04-03	Kang, Gyung-mo et al.	
		20030077071	A1	2003-04-24	Lin et al.	
		20030078930	A1	2003-04-24	Surcouf et al.	
		20030093799	A1	2003-05-15	Kauffman et al.	
		20030123855	A1	2003-07-03	Okada et al.	
		20030128296	A1	2003-07-10	Lee, Chulhee	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		20030133506	A	2003-07-17	Haneda, T.	
		20030135742	A1	2003-07-17	Evans, Glenn F.	
		20030142594	A1	2003-07-31	Tsumagari, Yasufumi et al.	
		20030142872	A1	2003-07-31	Koyanagi	
		20030152370	A1	2003-08-14	Otomo, Hitoshi et al.	
		20030165328		2003-09-04	Grecia, William	
		20030185302		2003-10-02	Abrams, Thomas A.	
		20030185542	A1	2003-10-02	McVeigh et al.	
		20030206558		2003-11-06	Parkkinen et al.	
		20030206717	A1	2003-11-06	Yogeshwar, Jay et al.	
		20030216922	A1	2003-11-20	Gonzales et al.	
		20030231863	A1	2003-12-18	Eerenberg, O. et al.	
		20030231867	A1	2003-12-18	Gates et al.	
		20030236836	A1	2003-12-25	Borthwick, Ernest M.	
		20040001594	A1	2004-01-01	Krishnaswamy, Vinay et al.	
		20040006701		2004-01-08	Kresina, Roman	
		20040021684		2004-02-05	Millner	
		20040022391	A1	2004-02-05	Obrien, Royal	
		20040025180	A1	2004-02-05	Begeja, Lee et al.	
		20040028227	A1	2004-02-12	Yu, Hong H.	
		20040037421	A1	2004-02-26	Truman, Michael M.	
		20040047592	A1	2004-03-11	Seo, Kang S., et al.	
		20040047607	A1	2004-03-11	Seo, Kang S., et al.	
		20040047614		2004-03-11	Green	
		20040052501		2004-03-18	Tam, Eddy C.	
		20040071453	A1	2004-04-15	Valderas, Harold M.	
		20040076237	A1	2004-04-22	Kadono, Shinya et al.	
		20040081333	A1	2004-04-29	Grab et al.	
		20040081434	A1	2004-04-29	Jung, Kil-Soo et al.	
		20040093494	A1	2004-05-13	Nishimoto, Yusei et al.	
		20040101059	A1	2004-05-27	Joch et al.	
		20040107356	A1	2004-06-03	Shamoon et al.	
		20040114687		2004-06-17	Ferris et al.	
		20040117347	A1	2004-06-17	Seo et al.	
		20040136698	A1	2004-07-15	Mock, Wayne E.	
		20040143760		2004-07-22	Alkove et al.	
		20040146276		2004-07-29	Ogawa, Hideaki	
		20040150747	A1	2004-08-05	Sita, R.	
		20040208245	A1	2004-10-21	Macinnis et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		20040217971	A1	2004-11-04	Kim, H	
		20040255236	A1	2004-12-16	Collart, Todd R.	
		20050013494	A1	2005-01-20	Srinivasan, Sridhar et al.	
		20050015797	A1	2005-01-20	Noblecourt et al.	
		20050038826	A1	2005-02-17	Bae, Dae-gyu et al.	
		20050052294	A1	2005-03-10	Liang et al.	
		20050055399		2005-03-10	Savchuk	
		20050063541	A1	2005-03-24	Candelore, Brant L.	
		20050076232	A1	2005-04-07	Kawaguchi, Takayoshi	
		20050089091	A1	2005-04-28	Kim, Chang-Su et al.	
		20050144468	A1	2005-06-30	Northcutt	
		20050157948	A1	2005-07-21	Lee	
		20050177741	A1	2005-08-11	Chen, Iue-shuenn et al.	
		20050180641	A1	2005-08-18	Clark	
		20050193070	A1	2005-09-01	Brown et al.	
		20050193322	A1	2005-09-01	Lamkin, Allan B., et al.	
		20050196147	A1	2005-09-08	Seo et al.	
		20050207442	A1	2005-09-22	Zoest et al.	
		20050207578	A1	2005-09-22	Matsuyama et al.	
		20050210145	A1	2005-09-22	Kim et al.	
		20050243912	A1	2005-11-03	Kwon, Do-kyoung et al.	
		20050265555	A1	2005-12-01	Pippuri, Sami	
		20050273695	A1	2005-12-08	Schnurr, Jeffrey R.	
		20050275656	A1	2005-12-15	Corbin, Toby et al.	
		20060013568	A1	2006-01-19	Rodriguez, Arturo A.	
		20060015813	A1	2006-01-19	Chung et al.	
		20060039481	A1	2006-02-23	Shen et al.	
		20060072672	A1	2006-04-06	Holcomb et al.	
		20060078301	A1	2006-04-13	Ikeda, Wataru et al.	
		20060093320	A1	2006-05-04	Hallberg et al.	
		20060126717	A1	2006-06-15	Boyce et al., Jill	
		20060129909	A1	2006-06-15	Butt et al.	
		20060165163	A1	2006-07-27	Burazerovic, Dzevdet et al.	
		20060168639	A1	2006-07-27	Gan et al., Liang	
		20060173887	A1	2006-08-03	Breitfeld et al.	
		20060181965	A1	2006-08-17	Collart, Todd R.	
		20060182139	A1	2006-08-17	Bugajski et al.	
		20060235880	A1	2006-10-19	Qian, R.	
		20060245727	A1	2006-11-02	Nakano, Hiroshi et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		20060259588	A1	2006-11-16	Lerman et al.	
		20060263056	A1	2006-11-23	Lin, Shu et al.	
		20060267986	A1	2006-11-30	Bae, Soo-Kang	
		20060274835		2006-12-07	Hamilton et al.	
		20070005333	A1	2007-01-04	Setiohardjo et al.	
		20070024706	A1	2007-02-01	Brannon, JR. et al.	
		20070031110	A1	2007-02-08	Rijckaert, Albert M.	
		20070047645	A1	2007-03-01	Takashima, Yoshikazu	
		20070047901	A1	2007-03-01	Ando, Hideo et al.	
		20070053293	A1	2007-03-08	Mcdonald, J F., et al.	
		20070067472	A1	2007-03-22	Maertens, Gregory R., et al.	
		20070083467	A1	2007-04-12	Lindahl et al.	
		20070083617	A1	2007-04-12	Chakrabarti, A et al.	
		20070086528	A1	2007-04-19	Mauchly, J. W., et al.	
		20070140647	A1	2007-06-21	Kusunoki et al.	
		20070154165	A1	2007-07-05	Hemmeryckz-Deleersnijder et al.	
		20070168541	A1	2007-07-19	Gupta et al.	
		20070168542	A1	2007-07-19	Gupta, Manish et al.	
		20070177812	A1	2007-08-02	Yang et al.	
		20070180051	A1	2007-08-02	Kelly, Michael J., et al.	
		20070180125	A1	2007-08-02	Knowles et al.	
		20070239839	A1	2007-10-11	Buday et al.	
		20070292107	A1	2007-12-20	Yahata, Hiroshi et al.	
		20080030614	A1	2008-02-07	Schwab, Barry H.	
		20080052306	A1	2008-02-28	Wang et al.	
		20080086570	A1	2008-04-10	Dey, Sujit et al.	
		20080101466	A1	2008-05-01	Swenson, Erik et al.	
		20080101718	A1	2008-05-01	Yang, Kuo-uei et al.	
		20080104633	A1	2008-05-01	Noblecourt et al.	
		20080120330	A1	2008-05-22	Reed, O et al.	
		20080120342	A1	2008-05-22	Reed, Ogden C., et al.	
		20080126248	A1	2008-05-29	Lee et al.	
		20080137736	A1	2008-06-12	Richardson et al.	
		20080137847	A1	2008-06-12	Candelore, Brant L., et al.	
		20080137848	A1	2008-06-12	Kocher et al.	
		20080192818	A1	2008-08-14	DiPietro et al.	
		20080196076	A1	2008-08-14	Shatz, Amir et al.	
		20080232456	A1	2008-09-25	Terashima et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		20080253454	A1	2008-10-16	Imamura et al.	
		20080256105	A1	2008-10-16	Nogawa, Hiroshi et al.	
		20080263354	A1	2008-10-23	Beuque et al.	
		20080266522	A1	2008-10-30	Weisgerber, R. C.	
		20080279535	A1	2008-11-13	Haque et al.	
		20080310496	A1	2008-12-18	Fang, Nicholas J.	
		20090010622	A1	2009-01-08	Yahata, Hiroshi et al.	
		20090013195	A1	2009-01-08	Ochi, Makoto et al.	
		20090031220	A1	2009-01-29	Tranchant et al.	
		20090037959	A1	2009-02-05	Suh, Jong Y., et al.	
		20090060452	A1	2009-03-05	Chaudhri, Imran A.	
		20090066839	A1	2009-03-12	Jung et al.	
		20090077143	A1	2009-03-19	Macy Jr, William W.	
		20090106082	A1	2009-04-23	Senti, Thad E., et al.	
		20090116821	A1	2009-05-07	Shibamiya et al.	
		20090132599	A1	2009-05-21	Soroushian et al.	
		20090132721	A1	2009-05-21	Soroushian et al.	
		20090150557	A1	2009-06-11	Wormley et al.	
		20090169181	A1	2009-07-02	Priyadarshi, S. et al.	
		20090178090	A1	2009-07-09	Oztaskent, Ant	
		20090201988	A1	2009-08-13	Gazier, Michael et al.	
		20090226148	A1	2009-09-10	Nesvadba et al.	
		20090249081	A1	2009-10-01	Zayas, Fernando A.	
		20090282162	A1	2009-11-12	Mehrotra, Sanjeev et al.	
		20090293116	A1	2009-11-26	DeMello, Marco A.	
		20090300204	A1	2009-12-03	Zhang et al.	
		20090303241	A1	2009-12-10	Priyadarshi, S et al.	
		20090307258	A1	2009-12-10	Priyadarshi et al	
		20090307267	A1	2009-12-10	Chen, Danny Y., et al.	
		20090310819	A1	2009-12-17	Hatano, Kouji	
		20090313544	A1	2009-12-17	Wood, Policarpo et al.	
		20090313564	A1	2009-12-17	Rottler et al.	
		20090328124	A1	2009-12-31	Khouzam et al.	
		20100002069	A1	2010-01-07	Eleftheriadis, A. et al.	
		20100040351	A1	2010-02-18	Toma et al	
		20100094969	A1	2010-04-15	Zuckerman, Gal et al.	
		20100095121	A1	2010-04-15	Shetty, Pritham et al.	
		20100111192	A1	2010-05-06	Graves, Hans W.	
		20100142915	A1	2010-06-10	Mcdermott, Jeff et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		20100146055	A1	2010-06-10	Hannuksela et al.	
		20100158109	A1	2010-06-24	Dahlby, Joshua et al.	
		20100226582	A1	2010-09-09	Luo et al.	
		20100228795	A1	2010-09-09	Hahn, Judah G.	
		20100259690	A1	2010-10-14	Wang et al.	
		20100262712	A1	2010-10-14	Kim et al.	
		20100278271	A1	2010-11-04	MacInnis	
		20100284473	A1	2010-11-11	Suh et al.	
		20110010466	A1	2011-01-13	Fan, Shunan et al.	
		20110022432	A1	2011-01-27	Ishida, T. et al.	
		20110055585	A1	2011-03-03	Lee, Kok-Wah	
		20110058675	A1	2011-03-10	Brueck, David F., et al.	
		20110080940	A1	2011-04-07	Bocharov, John A.	
		20110082924	A1	2011-04-07	Gopalakrishnan	
		20110096828	A1	2011-04-28	Chen et al.	
		20110099594	A1	2011-04-28	Chen, Ying et al.	
		20110103374	A1	2011-05-05	Lajoie, Michael L., et al.	
		20110126104	A1	2011-05-26	Woods, Thomas et al.	
		20110126191	A1	2011-05-26	Hughes, Richard et al.	
		20110129011	A1	2011-06-02	Cilli, Bruce R., et al.	
		20110135090	A1	2011-06-09	Chan et al.	
		20110142415	A1	2011-06-16	Rhyu	
		20110145858	A1	2011-06-16	Philpott, Gregory et al.	
		20110150100	A1	2011-06-23	Abadir, Essam	
		20110153785	A1	2011-06-23	Minborg et al.	
		20110164679	A1	2011-07-07	Satou et al.	
		20110170408	A1	2011-07-14	Furbeck et al.	
		20110173345	A1	2011-07-14	Knox, Christopher R., et al.	
		20110179185	A1	2011-07-21	Wang, Ye-kui et al.	
		20110197261	A1	2011-08-11	Dong, Ting et al.	
		20110239078	A1	2011-09-29	Luby, Michael et al.	
		20110246659	A1	2011-10-06	Bouazizi, Imed	
		20110246661	A1	2011-10-06	Manzari, Giuseppe et al.	
		20110268178	A1	2011-11-03	Park et al.	
		20110280307	A1	2011-11-17	MacInnis et al.	
		20110296048	A1	2011-12-01	Knox, Christopher R., et al.	
		20110302319	A1	2011-12-08	Ha et al.	
		20110305273	A1	2011-12-15	He et al.	
		20110310982	A1	2011-12-22	Yang, Jeong H., et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		20110314130	A1	2011-12-22	Strasman, Nery	
		20110314176	A1	2011-12-22	Frojdh et al.	
		20110314500	A1	2011-12-22	Gordon, Donald	
		20120005312	A1	2012-01-05	Mcgowan, Albert J., et al.	
		20120023251	A1	2012-01-26	Pyle, Harry et al.	
		20120042090	A1	2012-02-16	Chen, Ying et al.	
		20120047542	A1	2012-02-23	Lewis, Jason et al.	
		20120072493	A1	2012-03-22	Muriello et al.	
		20120093214	A1	2012-04-19	Urbach	
		20120105279	A1	2012-05-03	Brown, James et al.	
		20120110120	A1	2012-05-03	Willig, Johannes et al.	
		20120167132	A1	2012-06-28	Mathews, Robin M., et al.	
		20120170642	A1	2012-07-05	Braness et al.	
		20120170643	A1	2012-07-05	Soroushian, K et al.	
		20120170906	A1	2012-07-05	Soroushian, K et al.	
		20120170915	A1	2012-07-05	Braness, J et al.	
		20120173751	A1	2012-07-05	Braness, J et al.	
		20120177101	A1	2012-07-12	van der Schaar	
		20120179834	A1	2012-07-12	van der Schaar et al.	
		20120203766	A1	2012-08-09	Hörnkvist et al.	
		20120269275	A1	2012-10-25	Hannuksela, Miska M.	
		20120278496	A1	2012-11-01	Hsu, James K.	
		20120281767	A1	2012-11-08	Duenas et al.	
		20120307883	A1	2012-12-06	Graves, Hans W.	
		20120311174	A1	2012-12-06	Bichot, Guillaume et al.	
		20120331167	A1	2012-12-27	Hunt	
		20130007200	A1	2013-01-03	van der Schaar et al.	
		20130013803	A1	2013-01-10	Bichot, Guillaume et al.	
		20130044821	A1	2013-02-21	Braness et al.	
		20130046902	A1	2013-02-21	Villegas Nuñez et al.	
		20130051767	A1	2013-02-28	Soroushian et al.	
		20130051768	A1	2013-02-28	Soroushian et al.	
		20130054958	A1	2013-02-28	Braness et al.	
		20130055084	A1	2013-02-28	Soroushian et al.	
		20130058393	A1	2013-03-07	Soroushian	
		20130080267	A1	2013-03-28	McGowan, Albert J.	
		20130091249	A1	2013-04-11	McHugh et al.	
		20130095855	A1	2013-04-18	Bort, David	
		20130169863	A1	2013-07-04	Smith, John J.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. 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	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		20130191754	A1	2013-07-25	Rose	
		20130196292	A1	2013-08-01	Brennen et al.	
		20140003501	A1	2014-01-02	Soroushian et al.	
		20140003523	A1	2014-01-02	Soroushian et al.	
		20140140253	A1	2014-05-22	Lohmar, Thorsten et al.	
		20140149557	A1	2014-05-29	Lohmar, Torsten et al.	
		20140211840	A1	2014-07-31	Butt, Abou U., et al.	
		20140241421	A1	2014-08-28	Orton-jay et al.	
		20140250473	A1	2014-09-04	Braness, Jason et al.	
		20140355958	A1	2014-12-04	Soroushian et al.	
		20140359680	A1	2014-12-04	Shivadas et al.	
		20150104153	A1	2015-04-16	Braness, Jason et al.	
		20150229695	A1	2015-08-13	Kim et al.	
		20150288530	A1	2015-10-08	Oyman, Ozgur	
		20160127440	A1	2016-05-05	Gordon	
		20160134881	A1	2016-05-12	Wang et al.	
		20170026445		2017-01-26	Soroushian et al.	
		20170041604	A1	2017-02-09	Soroushian et al.	
		20170366833	A1	2017-12-21	Amidei et al.	
		20180278975	A1	2018-09-27	Soroushian	
		20190182524	A1	2019-06-13	Amidei et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	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]
		1995015660	WO	A1	1995-06-08	Birch et al.		
		08163488	JP	A	1996-06-21	Hiroshi et al.		
		08287613	JP	A	1996-11-01	Katayama		
		757484	EP	A2	1997-02-05	Tsukagoshi et al.		
		2237293	CA	A1	1997-07-10	Logston, Gary L., et al.		
		813167	EP	A2	1997-12-17	Ristow et al.		
		1221284	CN	A	1999-06-30	Kim, J		
		100221423	KR	B1	1999-09-15	Masamichu et al.		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		11328929	JP	A	1999-11-30	Hideo et al.		
		2000049762	WO	A2	2000-08-24	Rump et al.		
		2000049763	WO	A1	2000-08-24	Rump et al.		
		02001043668	JP	A	2001-02-16	Ishioka, Takayuki		
		2001031497	WO	A1	2001-05-03	Gonzalez, Ruben		
		2001050732	WO	A2	2001-07-12	Pintz et al.		
		2002001880	WO	A1	2002-01-03	Strothman et al.		
		2002013664	KR		2002-02-21	Kim et al.		
		2002170363	JP	A	2002-06-14	Hideo et al.		
		2002218384	JP	A	2002-08-02	Hyodo		
		1020020064888	KR	A	2002-08-10	Gonzales et al.		
		2003047262	WO	A2	2003-06-05	Xue et al.		
		1335603	EP	A2	2003-08-13	Koyanagi et al.		
		2003250113	JP	A	2003-09-05	Ogawa		
		2004012378	WO	A2	2004-02-05	Obrien, Royal		
		20040039852	KR	A	2004-05-12	Kim, Tae G.		
		1420580	EP	A1	2004-05-19	Schiller et al.		
		2004054247	WO	A1	2004-06-24	Gan et al.		
		1453319	EP	A1	2004-09-01	Kadono, Shinya et al.		
		2004097811	WO	A1	2004-11-11	Kim et al.		
		2004100158	WO	A1	2004-11-18	Chung, Hyun-kwon et al.		
		2004102571	WO	A1	2004-11-25	Rijckaert		
		2005008385	WO	A2	2005-01-27	Kocher et al.		
		2005027153	JP		2005-01-27	Kunieda, T et al.		
		2005015935	WO	A1	2005-02-17	Deakin, Ian		
		1662952	CN	A	2005-08-31	Janghwan et al.		
		1723696	CN		2006-01-18	Gan et al.		
		1756359	CN	A	2006-04-05	Miroslaw		
		1787422	CN	A	2006-06-14	Klemets		
		20060106250	KR	A	2006-10-12	An, Byung K.		
		1283640	EP	B1	2006-10-18	Ishikawa, Masaki et al.		
		1718074	EP	A1	2006-11-02	Kobayashi et al.		
		2328040	RU	C2	2008-06-27	Chung, Khiun-kvon et al.		
		2009006302	WO	A1	2009-01-08	Chen, Hao-nong et al.		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		2009508452	JP	A	2009-02-26	Shen et al.		
		2009065137	WO	A1	2009-05-22	Soroushian et al.		
		101461149	CN	A	2009-06-17	Yolanda et al.		
		2009109976	WO	A2	2009-09-11	Kedem, Nadav et al.		
		2180664	EP	A1	2010-04-28	Marusi, Julien et al.		
		2010060106	WO	A1	2010-05-27	Kohli et al.		
		2010111261	WO	A1	2010-09-30	Ma, Kevin J., et al.		
		2010122447	WO	A1	2010-10-28	Foo et al.		
		2010150470	WO	A1	2010-12-29	Satou et al.		
		2011053658	WO	A1	2011-05-05	Chen et al.		
		2011059291	WO	A2	2011-05-19	Kwon et al.		
		2011087449	WO	A1	2011-07-21	Priddle et al.		
		102138327	CN	A	2011-07-27	Satou et al.		
		2011093835	WO	A1	2011-08-04	Lu et al., Xiuping		
		2360923	EP	A1	2011-08-24	Laurent, Antony et al.		
		2011101371	WO	A1	2011-08-25	Bichot, Guillaume et al.		
		2011102791	WO	A1	2011-08-25	Einarsson		
		2011103364	WO	A1	2011-08-25	Thorwirth		
		2010202963	AU	A1	2012-02-02	Ma et al.		
		20120094181	WO	A2	2012-07-12	Soroushian et al.		
		20120094189	WO	A1	2012-07-12	Braness et al.		
		2012094171	WO	A1	2012-07-12	Braness et al.		
		2013033334	WO	A1	2013-03-07	Soroushian et al.		
		2013033335	WO	A1	2013-03-07	Soroushian et al.		
		2013033458	WO	A2	2013-03-07	Soroushian		
		2013033458	WO	A3	2013-05-02	Soroushian		
		2661895	EP	A2	2013-11-13	Soroushian et al.		
		20140056317	KR	A	2014-05-09	Soroushian et al.		
		103858419	CN	A	2014-06-11	Soroushian et al.		
		103875248	CN	A	2014-06-18	Soroushian		
		2017218095	WO	A1	2017-12-21	Amidei et al.		
		1195183	HK	B	2018-02-15	Soroushian et al.		
		103875248	CN	B	2018-09-07	Soroushian		
		101928910	KR	B1	2018-12-07	Egnatios et al.		
		108989847	CN	A	2018-12-11	Soroushian		
		10-1936142	KR	B1	2019-01-02	Soroushian et al.		
		109314784	CN	A	2019-02-05	Amidei et al.		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		3473005	EP	A1	2019-04-24	Amidei et al.		
		10-1981923	KR	B1	2019-05-20	Kourosh et al.		
		10-2020764	KR	B1	2019-09-05	Soroushian		
		2019-526188	JP	A	2019-09-12	Amidei et al.		
		1260329	HK	A	2019-12-20	Soroushian		
		10-2074148	KR	B1	2020-01-31	Soroushian		
		10-2086995	KR	B1	2020-03-04	Soroushian et al.		
		10-2140339	KR	B1	2020-07-27	Soroushian et al.		

NON-PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
		Broadq - The Ultimate Home Entertainment Software, printed 5/11/09 from ittp://web.srchive.org/web/20030401122010/www.broadq.com/qcasttuner/, 1 pg.	
		European Extended Search Report for EP Application 17813738.6, Search completed October 18, 2019, Mailed October 24, 2019, 9 pages	
		European Search Report for Application 11855103.5, search completed June 26, 2014, 9 pgs.	
		European Search Report for Application 11855237.1, search completed June 12, 2014, 9 pgs.	
		European Supplementary Search Report for Application EP09759600, completed January 25, 2011, 11 pgs.	
		Extended European Search Report for European Application EP12828956.8, Report Completed Feb 18, 2015, Mailed Mar 2, 2015, 13 Pages	
		Federal Computer Week, "Tool Speeds Info to Vehicles", July 25, 1999, 5 pages.	
		HTTP Live Streaming Overview, Networking & Internet, Apple, Inc., April 1, 2011, 38 pages.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		IBM CORPORATION and MICROSOFT CORPORATION, "Multimedia Programming Interface and Data Specifications 1.0", August 1991, printed from http://www.kk.iij4u.or.jp/~kondo/wave/mpidata.txt on March 6, 2006, 100 pgs	
		Information Technology - MPEG Systems Technologies - Part 7: Common Encryption in ISO Base Media File Format Files (ISO/IEC 23001-7), April 2015, 24 pgs.	
		InformationWeek, "Internet on Wheels", InformationWeek: Front End: Daily Dose, July 20, 1999, Printed on March 26, 2014, 3 pgs.	
		International Preliminary Report on Patentability for International Application No. PCT/US2008/083816, issued May 18, 2010, 6 pgs.	
		International Preliminary Report on Patentability for International Application No. PCT/US2012/053052, Completed March 4, 2014, 8 pgs.	
		International Preliminary Report on Patentability for International Application No. PCT/US2012/053223, Report Issued March 4, 2014, 7 pgs.	
		International Preliminary Report on Patentability for International Application PCT/US2011/067167, Issued February 25, 2014, 8 pgs.	
		International Preliminary Report on Patentability for International Application PCT/US2017/031114, Report issued December 18, 2018, Mailed December 27, 2018, 7 Pgs	
		International Search Report and Written Opinion for International Application No. PCT/US09/46588, completed July 13, 2009, mailed July 23, 2009, 7 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2004/041667, completed May 24, 2007, mailed June 20, 2007, 6 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2008/083816, completed January 10, 2009, mailed January 22, 2009, 7 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		International Search Report and Written Opinion for International Application No. PCT/US2012/053052, International Filing Date August 30, 2012, Report Completed October 25, 2012, Mailed November 16, 2012, 9 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2012/053223, International Filing Date August 30, 2012, Report Completed December 7, 2012, Mailed March 7, 2013, 10 pgs.	
		International Search Report and Written Opinion for International Application No. PCT/US2017/031114, Search completed June 29, 2017, Mailed July 19, 2017, 11 Pgs.	
		International Search Report and Written Opinion for International Application PCT/US2011/066927, completed April 3, 2012, Mailed April 20, 2012, 14 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2011/067167, completed June 19, 2012, Mailed July 2, 2012, 11 pgs.	
		International Search Report and Written Opinion for International Application PCT/US2012/053053, search completed October 23, 2012, mailed November 13, 2012, 11 pgs.	
		International Search Report for International Application No. PCT/SE2011/050166, Search completed March 30, 2011, Mailed March 30, 2011, 5 Pgs.	
		ISO/IEC 14496-12 Information technology – Coding of audio-visual objects – Part 12: ISO base media file format, Feb. 2004 ("MPEG-4 Part 12 Standard"), 62 pgs.	
		ISO/IEC 14496-12:2008(E) Informational Technology – Coding of Audio-Visual Objects Part 12: ISO Base Media File Format, October 2008, 120 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		ISO/IEC FCD 23001-6 MPEG systems technologies Part 6: Dynamic adaptive streaming over HTTP (DASH), January 28, 2011, 86 pgs.	
		ITS International, "Fleet System Opts for Mobile Server", August 26, 1999, Printed on October 21, 2011 from http://www.itsinternational.com/News/article.cfm?recordID=547, 2 pgs.	
		Linksys Wireless-B Media Adapter Reviews, printed May 4, 2007 from http://reviews.cnet.com/Linksys_Wireless_B_Media_Adapter/4505-6739_7-30421900.html?tag=box, 5 pgs.	
		Linksys, KISS DP-500, printed May 4, 2007 from http://www.kiss-technology.com/?p=dp500, 2 pgs.	
		LINKSYS® : "Enjoy your digital music and pictures on your home entertainment center, without stringing wires!", Model No. WMA 11B, printed May 9, 2007 from http://www.linksys.com/servlet/Satellite?c=L_Product_C2&childpagename=US/Layout&cid=1115416830950&p	
		MICROSOFT CORPORATION, "Chapter 8, Multimedia File Formats" 1991, Microsoft Windows Multimedia Programmer's Reference, 3 cover pgs, pp. 8-1 to 8-20	
		Microsoft Corporation, Advanced Systems Format (ASF) Specification, Revision 01.20.03, Dec. 2004, 121 pgs.	
		Microsoft Media Platform: Player Framework, "Microsoft Media Platform: Player Framework v2.5 (formerly Silverlight Media Framework)", May 3, 2011, 2 pages.	
		Microsoft Media Platform: Player Framework, "Silverlight Media Framework v1.1", January 2010, 2 pages.	
		Microsoft Windows® XP Media Center Edition 2005, Frequently asked Questions, printed May 4, 2007 from http://www.microsoft.com/windowsxp/mediacenter/evaluation/faq.mspx.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		Microsoft Windows® XP Media Center Edition 2005: Features, printed May 9, 2007, from http://www.microsoft.com/windowsxp/mediacenter/evaluation/features.mspx, 4 pgs.	
		MPEG-DASH presentation at Streaming Media West 2011, November 2011, 14 pgs.	
		Multiview Video Coding (MVC), ISO/IEC 14496-10, 2008 Amendment	
		Open DML AVI-M-JPEG File Format Subcommittee, "Open DML AVI File Format Extensions", Version 1.02, February 28, 1996, 29 pgs.	
		PC WORLD.COM, Future Gear: PC on the HiFi, and the TV, from http://www.pcworld.com/article/id,108818-page,1/article.html, printed May 4, 2007, from IDG Networks, 2 pgs.	
		Pomelo, LLC Tech Memo, Analysis of Netflix's Security Framework for 'Watch Instantly' Service, March-April 2009, 18 pgs.	
		Qtv - About BroadQ, printed 5/11/09 from http://www.broadq.com/en/about.php, 1 pg.	
		Server-Side Stream Repackaging (Streaming Video Technologies Panorama, Part 2), July 2011, 15 pgs.	
		Supplementary European Search Report for Application No. EP 04813918, Search Completed December 19, 2012, 3 pgs.	
		Text of ISO/IEC 23001-6: Dynamic adaptive streaming over HTTP (DASH), October 2010, 71 pgs.	
		Universal Mobile Telecommunications System (UMTS), ETSI TS 126 233 V9.1.0 (2011-06) 3GPP TS 26.233 version 9.1.0 Release 9, 18 pgs.	
		Universal Mobile Telecommunications Systems (UMTS); ETSI TS 126 244 V9.4.0 (2011-05) 3GPP TS 26.244 version 9.4.0 Release 9, 58 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		Windows Media Center Extender for Xbox, printed May 9, 2007 from http://www.xbox.com/en-US/support/systemuse/xbox/console/mediacenterextender.htm, 2 pgs.	
		Windows® XP Media Center Edition 2005, "Experience more entertainment", retrieved from http://download.microsoft.com/download/c/9/a/c9a7000a-66b3-455b-860b-1c16f2eecfec/MCE.pdf on May 9, 2007, 2 pgs.	
		"Adaptive HTTP Streaming in PSS- Client Behaviour", S4-AHI129, 3GPP TSG-SA4 Ad-Hoc Meeting, December 14th-16th 2009, Paris, France; section 12.6.1.	
		"Adaptive HTTP Streaming in PSS- Data Formats for HTTP-Streaming excluding MPD", S4-AHI128, 3GPP TSGSA4 Ad-Hoc Meeting, December 14th- 16th 2009, Paris,France; sections 12.2.1 and 12.2.4.2.1.	
		"Adaptive HTTP Streaming in PSS- Discussion on Options", S4-AHI130, 3GPP TSG-SA4 Ad-Hoc Meeting, December 14th-16th 2009, Paris, France; sections 1, 2.7-2.8, and 2.16-2.19.	
		"Adaptive Streaming Comparison", January 28, 2010, 5 pgs.	
		"Apple HTTP Live Streaming specification", August 2017, 60 pgs.	
		"Best Practices for Multi-Device Transcoding", Kaltura Open Source Video, Printed on November 27, 2013 from knowledge.kaltura.com/best-practices-multi-device-transcoding, 13 pgs.	
		"Container format (digital)", printed August 22, 2009 from http://en.wikipedia.org/wiki/Container_format_(digital), 4 pgs.	
		"Data Encryption Decryption using AES Algorithm, Key and Salt with Java Cryptography Extension", Available at https://www.digizol.com/2009/10/java-encrypt-decrypt-jce-salt.html, October 200, 6 pgs.	
		"Delivering Live and On-Demand Smooth Streaming", Microsoft Silverlight, 2009, 28 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		"DVD subtitles", sam.zoy.org/writings/dvd/subtitles, dated January 9, 2001, printed July 2, 2009, 4 pgs.	
		"Final Committee Draft of MPEG-4 streaming text format", International Organisation for Standardisation, February 2004, 22 pgs.	
		"Fragmented Time Indexing of Representations", S4-AHI126, 3GPP TSG-SA4 Ad-Hoc Meeting, December 14-16 2009, Paris, France	
		"HTTP Based Adaptive Streaming over HSPA", April 2011, 73 pgs.	
		"HTTP Live Streaming", March 2011, 24 pgs.	
		"HTTP Live Streaming", September 2011, 33 pgs.	
		"Information Technology - Coding of audio-visual objects - Part 17: Streaming text", International Organisation for Standardisation, February 2004, 22 pgs.	
		"Information technology - Coding of audio-visual objects - Part 18: Font compression and streaming", ISO/IEC 14496-18, First edition 7/1/04, 26 pgs.	
		"Information Technology-Coding of Audio Visual Objects- Part 2: Visual", International Standard, ISO/IEC 14496-2, Third Edition, Jun. 1, 2004, pp. 1-724. (presented in three parts).	
		"Java Cryptography Architecture API Specification & Reference", Available at https://docs.oracle.com/javase/1.5.0/docs/guide/security/CryptoSpec.html, July 25, 2004, 68 pgs.	
		"Java Cryptography Extension, javax.crypto.Cipher class", Available at https://docs.oracle.com/javase/1.5.0/docs/api/javax/crypto/Cipher.html, 2004, 24 pgs.	
		"JCE Encryption – Data Encryption Standard (DES) Tutorial", Available at https://mkyong.com/java/jce-encryption-data-encryption-standard-des-tutorial/, February 25, 2009, 2 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		"KISS Players, “KISS DP-500", retrieved from http://www.kiss-technology.com/?p=dp500 on May 4, 2007, 1 pg.	
		"Live and On-Demand Video with Silverlight and IIS Smooth Streaming", Microsoft Silverlight, Windows Server Internet Information Services 7.0, February 2010, 15 pgs.	
		"Microsoft Smooth Streaming specification", July 22, 2013, 56 pgs.	
		"MPEG ISO/IEC 13818-1", Information Technology - Generic Coding of Moving Pictures And Associated Audio: Systems, April 25, 1995, 151 pages.	
		"MPEG-4, Part 14, ISO/IEC 14496-14", Information technology- Coding of audio-visual objects, 18 pgs., 11/15/2003.	
		"Netflix turns on subtitles for PC, Mac streaming", Yahoo! News, April 21, 2010, Printed on March 26, 2014, 3 pgs.	
		"OpenDML AVI File Format Extensions", OpenDML AVI M-JPEG File Format Subcommittee, retrieved from www.the-labs.com/Video/odmlff2-avidef.pdf, September 1997, 42 pgs.	
		"QCast Tuner for PS2", printed May 11, 2009 from http://web.archive.org/web/20030210120605/www.divx.com/software/detail.php?ie=39, 2 pgs.	
		"Single-Encode Streaming for Multiple Screen Delivery", Telestream Wowza Media Systems, 2009, 6 pgs.	
		"Smooth Streaming Client", The Official Microsoft IIS Site, September 24, 2010, 4 pages.	
		"Supported Media Formats", Supported Media Formats, Android Developers, Printed on November 27, 2013 from developer.android.com/guide/appendix/media-formats.html, 3 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		"Text of ISO/IEC 14496-18/COR1, Font compression and streaming", ITU STUDY GROUP 16 - VIDEO CODING EXPERTS GROUP -ISO/IEC MPEG & ITU-T VCEG(ISO/IEC JTC1/SC29/WG11 AND ITU-T SG16 06), no. N8664, October 27, 2006, 8 pgs.	
		"Text of ISO/IEC 14496-18/FDIS, Coding of Moving Pictures and Audio", ITU STUDY GROUP 16 - VIDEOCODING EXPERTS GROUP -ISO/IEC MPEG & ITU-T VCEG(ISO/IEC JTC1/SC29/WG11 AND ITU-T SG16 06), no. N6215, December 2003, 26 pgs.	
		"The MPEG-DASH Standard for Multimedia Streaming Over the Internet", IEEE MultiMedia, Vol. 18, No. 4, 2011, 7 pgs.	
		"Thread: SSME (Smooth Streaming Medial Element) config.xml review (Smooth Streaming Client configuration file)", Printed on March 26, 2014, 3 pgs.	
		"Transcoding Best Practices", From movideo, Printed on November 27,2013 from code.movideo.com/Transcoding_Best_Practices, 5 pgs.	
		"Transparent end-to-end packet switched streaming service (PSS); 3GPP file format (3GP) (Release 9)", 3GPP TS 26.244 V9.0.0 (2009-12), sections 7.1-7.4.	
		"Using HTTP Live Streaming", iOS Developer Library, http://developer.apple.com/library/ios/#documentation/networkinginternet/conceptual/streamingmediaguide/UsingHTTPLiveStreaming/UsingHTTPLiveStreaming.html#//apple_ref/doc/uid/TP40008332-CH102-SW1, February 11, 2014,10 pgs.	
		"Video Manager and Video Title Set IFO file headers", printed August 22, 2009 from http://dvd.sourceforge.net/dvdinfo/ifo.htm, 6 pgs.	
		"What is a DVD?", printed August 22, 2009 from http://www.videohelp.com/dvd, 8 pgs.	
		"What is a VOB file", http://www.mpucoder.com/DVD/vobov.html, printed on July 2, 2009, 2 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		"What's on a DVD?", printed August 22, 2009 from http://www.doom9.org/dvd-structure.htm, 5 pgs.	
		"Windows Media Player 9", Microsoft, March 23, 2017, 3 pgs.	
		"DVD-Mpeg differences", printed on July 2, 2009, http://dvd.sourceforge.net/dvdinfo/dvdmpeg.html, 1 pg.	
		13/224,298, "Final Office Action Received", May 19, 2014, 26 pgs.	
		ABOMHARA ET AL., "Enhancing Selective Encryption for H.264/AVC Using Advanced Encryption Standard", International Journal of computer Theory and Engineering, April 2010, Vol. 2, No. 2, pp. 223-229.	
		AKHSHABI ET AL., "An Experimental Evaluation of Rate-Adaptation Algorithms in Adaptive Streaming over HTTP", MMSys'11, February 23-25, 2011, 12 pgs.	
		ALATTAR ET AL., A.M. "Improved selective encryption techniques for secure transmission of MPEG video bit-streams", In Proceedings 1999 International Conference on Image Processing (Cat. 99CH36348), Vol. 4, IEEE, 1999, pp. 256-260.	
		ANONYMOUS, "Method for the encoding of a compressed video sequence derived from the same video sequence compressed at a different bit rate without loss of data", ip.com, ip.com number: IPCOM000008165D, May 22, 2002, pp. 1-9.	
		ANTONIOU ET AL., "Adaptive Methods for the Transmission of Video Streams in Wireless Networks", 2015, 50 pgs.	
		APOSTOLOPOULOS ET AL., "Secure Media Streaming and Secure Transcoding", Multimedia Security Technologies for Digital Rights Management, 2006, 33 pgs.	
		ASAI ET AL., "Essential Factors for Full-Interactive VOD Server: Video File System, Disk Scheduling, Network", Proceedings of Globecom '95, November 14-16, 1995, 6 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		BEKER ET AL., "Cipher Systems, The Protection of Communications", 1982, 40 pgs.	
		BLASIAK, "Video Transrating and Transcoding: Overview of Video Transrating and Transcoding Technologies", Ingenient Technologies, TI Developer Conference, August 6-8, 2002, 22 pgs.	
		BOCHAROV ET AL, "Portable Encoding of Audio-Video Objects, The Protected Interoperable File Format (PIFF)", Microsoft Corporation, First Edition September 8, 2009, 30 pgs.	
		BULTERMAN ET AL., "Synchronized Multimedia Integration Language (SMIL 3.0)", W3C Recommendation, 01 December 2008, https://www.w3.org/TR/2008/REC-SMIL3-20081201/, 321 pgs. (presented in five parts).	
		CAHILL ET AL., "Locally Adaptive Deblocking Filter for Low Bit Rate Video", Proceedings 2000 International Conference on Image Processing, September 10-13, 2000, Vancouver, BC, Canada, 4 pgs.	
		CANDELORE, File Wrapper, U.S. Provisional Application No. 60/372,901, Filed April 17, 2002, 5 pgs.	
		CASARES ET AL., "Simplifying Video Editing Using Metadata", DIS2002, 2002, pp.157-166	
		CHADDHA ET AL., "A Frame-work for Live Multicast of Video Streams over the Internet", Proceedings of 3rd IEEE International Conference on Image Processing, September 19, 1996, Lausanne, Switzerland, 4 pgs.	
		CHENG, "Partial Encryption for Image and Video Communication", Thesis, Fall 1998, 95 pgs.	
		CHENG ET AL., "Partial encryption of compressed images and videos", IEEE Transactions on Signal Processing, Vol. 48, No. 8, Aug. 2000, 33 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		CHEUNG ET AL., "On the Use of Destination Set Grouping to Improve Fairness in Multicast Video Distribution", Proceedings of IEEE INFOCOM'96, Conference on Computer Communications, vol. 2, IEEE, 1996, 23 pgs.	
		COLLET, "Delivering Protected Content, An Approach for Next Generation Mobile Technologies", Thesis, 2010, 84 pgs.	
		DEUTSCHER, "IIS Transform Manager Beta - Using the MP4 to Smooth Task", Retrieved from: https://web.archive.org/web/20130328111303/http://blog.johndeutscher.com/category/smooth-streaming, Blog post of April 29, 2011, 14 pgs.	
		DIAMANTIS ET AL., "Real Time Video Distribution using Publication through a Database", Proceedings SIBGRAPI'98. International Symposium on Computer Graphics, Image Processing, and Vision (Cat. No.98EX237), October 1990, 8 pgs.	
		DING, LI-FU et al., "Content-Aware Prediction Algorithm With Inter-View Mode Decision for Multiview Video Coding", IEEE Transactions on Multimedia, Vol. 10, No.8, December 2008., 12/8/2008, 12 Pages	
		DWORKIN, "Recommendation for Block Cipher Modes of Operation: Methods and Techniques", NIST Special Publication 800-38A, 2001, 66 pgs.	
		FANG ET AL., "Real-time deblocking filter for MPEG-4 systems", Asia-Pacific Conference on Circuits and Systems, October 28-31, 2002, Bail, Indonesia, pp. 541-544.	
		FECHEYR-LIPPENS, "A Review of HTTP Live Streaming", January 2010, 38 pgs.	
		FIELDING ET AL., "Hypertext Transfer Protocol -- HTTP1.1", Network Working Group, RFC 2616, June 1999, 114 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		FUKUDA ET AL., "Reduction of Blocking Artifacts by Adaptive DCT Coefficient Estimation in Block-Based Video Coding", Proceedings 2000 International Conference on Image Processing, September 10-13, 2000, Vancouver, BC, Canada, pp. 969-972.	
		GANNES, "The Lowdown on Apple's HTTP Adaptive Bitrate Streaming", GigaOM, June 10, 2009, 12 pgs.	
		GHOSH, "Enhancing Silverlight Video Experiences with Contextual Data", Retrieved from: http://msdn.microsoft.com/en-us/magazine/ee336025.aspx, 2010,15 pgs.	
		GRIFFITH, ERIC "The Wireless Digital Picture Frame Arrives", Wi-Fi Planet, printed May 4, 2007 from http://www.wi-fiplanet.com/news/article.php/3093141, October 16, 2003, 3 pgs.	
		HUANG, File Wrapper, U.S. Patent No. 7,729,426, Application No. 11/230,794, Filed September 20, 2005, 143 pgs.	
		HUANG ET AL., "Adaptive MLP post-processing for block-based coded images", IEEE Proceedings - Vision, Image and Signal Processing, Vol. 147, No. 5, October 2000, pp. 463-473.	
		HUANG ET AL., "Architecture Design for Deblocking Filter in H.264/JVT/AVC", 2003 International Conference on Multimedia and Expo., July 6-9, 2003, Baltimore, MD, 4 pgs.	
		INLET TECHNOLOGIES, "Adaptive Delivery to iDevices", 2010, 2 pages	
		INLET TECHNOLOGIES, "Adaptive delivery to iPhone 3.0", 2009, 2 pgs.	
		INLET TECHNOLOGIES, "HTTP versus RTMP", 2009, 3 pages	
		INLET TECHNOLOGIES, "The World's First Live Smooth Streaming Event: The French Open", 2009, 2 pages	
		I-O DATA, "Innovation of technology arrived", November 2004, Retrieved from http://www.iodata.com/catalogs/AVLP2DVDLA_Flyer200505.pdf, 2 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		JAIN ET AL., File Wrapper, U.S. Provisional Application No. 61/522,623, Filed August 11, 2011, 44 pgs.	
		JEANNIN, SYLVIE et al., "Video Motion Representation for Improved Content Access", IEEE Transactions on Consumer Electronics, Vol. 46, No. 3., 8/2004, 11 Pages	
		JUNG ET AL., "Design and Implementation of an Enhanced Personal Video Recorder for DTV", IEEE Transactions on Consumer Electronics, Vol. 47, No. 4, November 2001, 6 pgs.	
		KALVA, HARI "Delivering MPEG-4 Based Audio-Visual Services", 2001, 113 pgs.	
		KANG ET AL., "Access Emulation and Buffering Techniques for Steaming of Non- Stream Format Video Files", IEEE Transactions on Consumer Electronics, Vol. 43, No. 3, Aug. 2001, 7 pgs.	
		KAROUIA ET AL., "Video Similarity Measurement Based on Attributed Relational Graph Matching", N.T. Nguyen, R. Katarzyniak (Eds.): New Challenges in Applied Intelligence Technologies, SCI 134, pp. 173-182, 2008., 2008, 10 Pages	
		KIM, SEON H. et al., "Design and implementation of geo-tagged video search framework", Journal of Visual Communication and Image Representation, 2010, Vol. 21 (2010), pp. 773-786	
		KIM ET AL, "A Deblocking Filter with Two Separate Modes in Block-Based Video Coding", IEEE transactions on circuits and systems for video technology, Vol. 9, No. 1, 1999, pp. 156-160.	
		KIM ET AL., "Tree-Based Group Key Agreement", February 2004, 37 pgs.	
		KURZKE ET AL., "Get Your Content Onto Google TV", Google, Retrieved from: http://commondatastorage.googleapis.com/io2012/presentations/live%20to%20website/1300.pdf, 2012, 58 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		LANG, "Expression Encoder, Best Practices for live smooth streaming broadcasting", Microsoft Corporation, 2010, retrieved from http://www.streamingmedia.com/conferences/west2010/presentations/SMWest-12010-Expression-Encoder.pdf, 20 pgs.	
		LAUKENS, "Adaptive Streaming - A Brief Tutorial", EBU Technical Review, 2011, 6 pgs.	
		LEGAULT ET AL., "Professional Video Under 32-bit Windows Operating Systems", SMPTE Journal, Vol. 105, No. 12, December 1996, 10 pgs.	
		LEVKOV, "Mobile Encoding Guidelines for Android Powered Devices", Adobe Systems Inc., Addendum B, 22 December 2010, 42 pgs.	
		LEWIS, "H.264/MPEG-4 AVC CABAC overview", October 25, 2012, printed June 24, 2013 from http://www.web.archive.org/web/20121025003926/www.theonlineoasis.co.uk/notes.html, 3 pgs.	
		LI ET AL., "Layered Video Multicast with Retransmission (LVMR): Evaluation of Hierarchical Rate Control", Proceedings of IEEE INFOCOM'98, the Conference on Computer Communications. Seventeenth Annual Joint Conference of the IEEE Computer and Communications Societies. Gateway to the 21st Century, Cat. No. 98, Vol. 3, 1998, 26 pgs.	
		LIST ET AL., "Adaptive deblocking filter", IEEE transactions on circuits and systems for video technology, Vol. 13, No. 7, July 2003, pp. 614-619.	
		LONG ET AL., "Silver: Simplifying Video Editing with Metadata", Demonstrations, CHI 2003: New Horizons, April 5-10, 2003, pp. 628-629.	
		MASSOUDI ET AL., "Overview on Selective Encryption of Image and Video: Challenges and Perspectives", EURASIP Journal on Information Security, November 2008, 18 pgs.	
		MCCANNE ET AL., "Receiver-driven Layered Multicast", Conference proceedings on Applications, technologies, architectures, and protocols for computer communications, August 1996, 14 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		MEIER, "Reduction of Blocking Artifacts in Image and Video Coding", IEEE Transactions on Circuits and Systems for Video Technology, Vol. 9, No. 3, April 1999, pp. 490-500.	
		MORRISON, "EA IFF 85 Standard for Interchange Format Files", January 14, 1985, printed from http://www.dcs.ed.ac.uk/home/mxr/gfx/2d/IFF.txt on March 6, 2006, 24 pgs	
		MSDN, "Adaptive streaming, Expression Studio 2.0", April 23, 2009, 2 pgs.	
		NELSON, "Arithmetic Coding + Statistical Modeling = Data Compression: Part 1 - Arithmetic Coding", Doctor Dobb's Journal, February 1991, USA, pp. 1-12	
		NELSON, "Smooth Streaming Deployment Guide", Microsoft Expression Encoder, August 2010, 66 pgs.	
		NEWTON ET AL., "Preserving Privacy by De-identifying Facial Images", Carnegie Mellon University School of Computer Science, Technical Report, CMU-CS-03-119, March 2003, 26 pgs.	
		NOBORU, "Play Fast and Fine Video on Web! codec", Co.9 No.12, December 1, 2003, pp. 178-179	
		NOE, A. "Matroska File Format (under construction!)", Retrieved from the Internet: URL:http://web.archive.org web/20070821155146/www.matroska.org/technical/specs/matroska.pdf [retrieved on 2011-01-19], 6/24/2007, 1-51	
		NOE, ALEXANDER "AVI File Format", http://www.alexander-noe.com/video/documentation/avi.pdf, December 14, 2006, pp. 1-26.	
		NOE, ALEXANDER "Definitions", April 11, 2006, retrieved from http://www.alexander-noe.com/video/amg/definitions.html on October 16, 2013, 2 pages	
		O'BRIEN, File Wrapper, U.S. Provisional Application No. 60/399,846, Filed July 30, 2002, 27 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		O'ROURKE, "Improved Image Decompression for Reduced Transform Coding Artifacts", IEEE Transactions on Circuits and Systems for Video Technology, Vol. 5, No. 6, December 1995, pp. 490-499.	
		OZER, "The 2012 Encoding and Transcoding Buyers' Guide", Streamingmedia.com, Retrieved from: http://www.streamingmedia.com/Articles/Editorial/Featured-Articles/The-2012-Encoding-and-Transcoding-Buyers-Guide-84210.aspx, 2012, 8 pgs.	
		OZER, JAN "Adaptive Streaming in the Field", Streaming Media, December 2010-January 2011, pp, 36-47.	
		PANTOS, "HTTP Live Streaming, draft-pantos-http-live-streaming-10", IETF Tools, October 15, 2012, Retrieved from: http://tools.ietf.org/html/draft-pantos-http-live-streaming-10, 37 pgs.	
		PARK ET AL., "A postprocessing method for reducing quantization effects in low bit-rate moving picture coding", IEEE Transactions on Circuits and Systems for Video Technology, Vol. 9, No. 1, February 1999, pp. 161-171.	
		PHAMDO, "Theory of Data Compression", printed on October 10, 2003, 12 pgs.	
		RGB NETWORKS, "Comparing Adaptive HTTP Streaming Technologies", November 2011, Retrieved from: http://btreport.net/wp-content/uploads/2012/02/RGB-Adaptive-HTTP-Streaming-Comparison-1211-01.pdf, 20 pgs.	
		RICHARDSON, "H.264 and MPEG-4 Video Compression", Wiley, 2003, 306 pgs. (presented in 2 parts).	
		SCHULZRINNE ET AL., "Real Time Streaming Protocol (RTSP)", Internet Engineering Task Force, RFC 2326, April 1998, 80 pgs.	
		SIGLIN, "HTTP Streaming: What You Need to Know", streamingmedia.com, 2010, 15 pages.	
		SIGLIN, "Unifying Global Video Strategies, MP4 File Fragmentation for Broadcast, Mobile and Web Delivery", Nov. 16, 2011, 16 pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		SIMA ET AL., "An Efficient Architecture for Adaptive Deblocking Filter of H.264 AVC Video Coding", IEEE Transactions on Consumer Electronics, Vol. 50, No. 1, February 2004, pp. 292-296.	
		SPANOS ET AL., "Performance Study of a Selective Encryption Scheme for the Security of Networked, Real-Time Video", Proceedings of the Fourth International Conference on Computer Communications and Networks, IC3N'95, September 20-23, 1995, Las Vegas, NV, pp. 2-10.	
		SRINIVASAN ET AL., "Windows Media Video 9: overview and applications", Signal Processing: Image Communication, 2004, 25 pgs.	
		STOCKHAMMER, "Dynamic Adaptive Streaming over HTTP –Standards and Design Principles", Proceedings of the second annual ACM conference on Multimedia, February 2011, Pages 133-145.	
		TAXAN, "AVel LinkPlayer2 for Consumer", I-O Data USA - Products - Home Entertainment, printed May 4, 2007 from http://www.iodata.com/usa/products/products.php?cat=HNP&sc=AVEL&pld=AVLP2/DVDLA&ts=2&tsc, 1 pg.	
		TIMMERER ET AL., "HTTP Streaming of MPEG Media", Proceedings of Streaming Day, 2010, 4 pgs.	
		TIPHAIGNE ET AL., "A Video Package for Torch", June 2004, 46 pgs.	
		TRAPPE ET AL., "Key Management and Distribution for Secure Multimedia Multicast", IEEE Transaction on Multimedia, Vol. 5, No. 4, December 2003, pp. 544-557.	
		UNKNOWN, "AVI RIFF File Reference (Direct X 8.1 C++ Archive)", printed from http://msdn.microsoft.com/archive/en-us/dx81_c/directx_cpp/htm/aviriifffilereference.asp?fr...on March 6, 2006, 7 pgs	
		UNKNOWN, "Entropy and Source Coding (Compression)", TCOM 570, 1999-9, pp. 1-22	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		UNKNOWN, "MPEG-4 Video Encoder: Based on International Standard ISO/IEC 14496-2", Patni Computer Systems, Ltd., publication date unknown, 15 pgs.	
		VAN DEURSEN ET AL., "On Media Delivery Protocols in the Web", 2010 IEEE International Conference on Multimedia and Expo, July 19-23, 2010, 6 pgs.	
		VENTURA, GUILLERMO ALBAIDA "Streaming of Multimedia Learning Objects", AG Integrated Communication System, March 2003, 101 pgs.	
		WAGGONER, "Compression for Great Digital Video", 2002, 184 pgs.	
		WATANABEM ET AL., "MPEG-2 decoder enables DTV trick plays", esearcher System LSI Development Lab, Fujitsu Laboratories Ltd., Kawasaki, Japan, June 2001, 2 pgs.	
		WATSON, MARK "Input for DASH EE#1 (CMP): Pixel Aspect Ratio", 94. MPEG MEETING; 11-10-2010- 15-10-2010; GUANGZHOU; (MOTION PICTURE EXPERT GROUP OR ISO/IEC JTC1/SC29/ WG11), no. M18498, 28 October 2010 (2010-10-28), XP030047088,, 10/2/2010, 4 Pages	
		WIEGAND, "Joint Video Team (JVT) of ISO/IEC MPEG and ITU-T VCEG", January 2002, 70 pgs.	
		WILLIG ET AL., File Wrapper, U.S. Provisional Application No. 61/409,285, Filed November 2, 2010, 43 pgs.	
		YANG ET AL., "Projection-Based Spatially Adaptive Reconstruction of Block-Transform Compressed Images", IEEE Transactions on Image Processing, Vol. 4, No. 7, July 1995, pp. 896-908.	
		YANG ET AL., "Regularized Reconstruction to Reduce Blocking Artifacts of Block Discrete Cosine Transform Compressed Images", IEEE Transactions on Circuits and Systems for Video Technology, Vol. 3, No. 6, December 1993, pp. 421-432.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		YU ET AL., "Video deblocking with fine-grained scalable complexity for embedded mobile computing", Proceedings 7th International Conference on Signal Processing, August 31 - September 4, 2004, pp. 1173-1178.	
		ZAKHOR, "Iterative Procedures for Reduction of Blocking Effects in Transform Image Coding", IEEE Transactions on Circuits and Systems for Video Technology, Vol. 2, No. 1, March 1992, pp. 91-95.	
		ZAMBELLI, "IIS Smooth Streaming Technical Overview", Microsoft Corporation, March 2009.	

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.

[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.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. 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	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

U.S. PATENTS

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
		5477272	A	1995-12-19	Zhang et al.	
		6192154	B1	2001-02-20	Rajagopalan et al.	
		8472792		2013-06-25	Ahsan Butt et al.	
		8897370	B1	2014-11-25	Wang et al.	
		10452715	B2	2019-10-22	Soroushian et al.	
		10595070	B2	2020-03-17	Amidei et al.	
		10931982	B2	2021-02-23	Soroushian	

U.S. PATENT APPLICATION PUBLICATIONS

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
		20020085638	A1	2002-07-04	Morad, Amir et al.	
		20030012275	A1	2003-01-16	Boice et al.	
		20040213547	A1	2004-10-28	Hayes	
		20070053444	A1	2007-03-08	Shibata, Shojiro et al.	
		20080063051	A1	2008-03-13	Kwon et al.	
		20100189183	A1	2010-07-29	Gu, Chuang et al.	
		20100195713	A1	2010-08-05	Coulombe et al.	
		20120316941	A1	2012-12-13	Moshfeghi	
		20130019257	A1	2013-01-17	Tschernutter et al.	
		20130061045	A1	2013-03-07	Kiefer et al.	
		20130097172	A1	2013-04-18	McIntosh	
		20130128970	A1	2013- 05-23	Yu et al.	
		20130279810	A1	2013-10-24	Li et al.	
		20140059243	A1	2014-02-27	Reisner	
		20150036758		2015-02-05	Sato	
		20160073176	A1	2016-03-10	Phillips et al.	
		20200186854	A1	2020-06-11	Soroushian	
		20200221152	A1	2020-07-09	Amidei et al.	
		20200396451	A1	2020-12-17	Soroushian et al.	
		20210021662	A1	2021-01-21	Soroushian et al.	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. 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	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	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]
		2004320707	JP	A	2004-11-11	Nakajima et al.		
		1684518	CN	A	2005-10-19	Green et al.		
		2010262255	JP	A	2010-11-18	Sawada, Toyoshi		
		2011029962	JP	A	2011-02-10	Yajima et al.		
		20110051104	KR	A	2011-05-17	Kang et al.		
		2013026724	JP	A	2013-02-04	Sato, Kazufumi		
		2014506430	JP	A	2014-03-13	Braness et al.		
		2014190308	WO	A1	2014-11-27	Orton et al.		
		2962461	EP	A1	2016-01-06	Naletov		
		20165043	JP	A	2016-01-12	Koji		
		105359511	CN	A	2016-02-24	Orton-jay et al.		
		20160021141	KR	A	2016-02-24	Orton et al.		
		3005689	EP	A1	2016-04-13	Orton-jay et al.		
		2016526336	JP	A	2016-09-01	Orton et al.		
		101823321	KR	B1	2018-01-31	Orton-Jay et al.		
		1263223	HK	A	2020-01-31	Amidei et al.		
		10-2163151	KR	B1	2020-09-29	Soroushian et al.		
		10-2187792	KR	B1	2020-12-01	Soroushian et al.		
		10-2190364	KR	B1	2020-12-07	Amidei et al.		
		108989847	CN	B	2021-03-09	Soroushian		
		10-2241867	KR	B1	2021-04-13	Soroushian et al.		

NON-PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
		Extended European Search Report for European Application No. 14800901.2, Search completed December 2, 2016, Mailed December 13, 2016, 13 Pgs.	
		International Preliminary Report on Patentability for International Application PCT/US2014/039425, Report Issued November 24, 2015, Mailed December 3, 2015, 6 Pgs.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	OPAP
	Examiner Name	Docket Central
	Attorney Docket Number	D1-02350.CON3

		International Search Report and Written Opinion for International Application PCT/US14/39425, International Filing Date March 23, 2014, Report Completed September 15, 2014, Mailed October 17, 2014, 9 Pgs., 10/17/14.	
		WESTERINK ET AL., "Two-pass MPEG-2 variable-bit-rate encoding", IBM Journal of Research and Development, International Business Machines Corporation, New York, NY, US, XP002395114, ISSN: 0018-8646, Volume 43, Number 4, July 4, 1999, pages 471-488.	
		WU ET AL., "A Hierarchical Reliability-Driven Scheduling for Cloud Video Transcoding", International Conference on Machine Learning and Cybernetics, July 12, 2015, pp. 456-461.	

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.

[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.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. 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	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	2483
	Examiner Name	Zhubing Ren
	Attorney Docket Number	D1-02350.CON3

U.S. PATENT APPLICATION PUBLICATIONS

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
		20020089523	A1	2002-07-11	Hodgkinson	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	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]
		1260329	HK	B	2021-11-26	Soroushian		
		10-2363764	KR	B1	2022-02-11	Soroushian et al.		

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.

[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.

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.
17/181,996	02/22/2021	Kourosh Soroushian	D1-02350.CON3	1105

71897 7590 05/16/2022

KPPB LLP
2190 S. Towne Centre Place
Suite 300
Anaheim, CA 92806

EXAMINER
REN, ZHUBING

ART UNIT	PAPER NUMBER
2483	

NOTIFICATION DATE	DELIVERY MODE
05/16/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PAIR@KPPB.COM

Office Action Summary	**Application No.** 17/181,996	**Applicant(s)** Soroushian, Kourosh	
	Examiner ZHUBING REN	**Art Unit** 2483	**AIA (FITF) Status** No

-- 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 MONTHS 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 4/28/2022.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ 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*

5) ☑ Claim(s) 2-17 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 2-17 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 2/22/2021 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).

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).

Certified copies:

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)).

** 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) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Summary

2. This action is in reply to Applicant's Amendments and Remarks filed on 4/28/2022.

3. Claims 2-17 are pending.

Response to Arguments

4. Claims 1 has been canceled. Therefore, the statutory type double patenting rejections of claim 1 under 35 U.S.C. § 101 are withdrawn.

5. Applicant's arguments with respect to amended claims and originally presented claims have been fully considered but they are moot in view of the new grounds of rejection.

6. During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." *Phillips v. AWH Corp.*, 415 F.3d 1303, at 1316 (Fed. Cir. 2005). See also *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000).

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

8. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided

the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

9. The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

10. Claims 2-17 are rejected on the ground of nonstatutory obviousness-type double patenting over claims 1 of U.S. Patent No. 10931982 B2, since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is merely in the terminology used in both sets of claims.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Claim Rejections - 35 USC § 103

11. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claim 2-6, 8-14, and 16-17 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Wang et al (US 8767825 B1) in view of Satou et al. (US 20110164679 A1).

Regarding claim 2 and 10, Wang discloses a method for encoding source content [e.g. FIG. 2 and 7; encoding the source video] as a plurality of alternative video streams [e.g. multiple videos], each having a bitrate [e.g. Fig. 7], the method comprising: for each of a plurality of alternative streams [e.g. FIG. 7-9; source video]: identifying a plurality of resolutions for encoding of video content [e.g. FIG. 5; multiple resolutions]; for each particular resolution of the plurality of resolutions, determining an optimal target bitrate by [e.g. FIG. 7; refined target bitrate]: encoding at least a portion of source video content using the particular resolution and each of a plurality of target bitrates for the particular resolution [e.g. 780]; evaluating a quality of the at least a portion of source content encoded at each of the plurality of bitrates [e.g. FIG. 7-9; optimized bitrate and visual quality; visual quality is determined by its encoding bitrate]; and selecting a target bitrate of the plurality of bitrates as the optimal target bitrate for the particular resolution based on the evaluated quality of the at least a portion of source content encoded at each of the plurality of bitrates [e.g. FIG.5, 7, and 9] ; and selecting an optimal resolution [e.g. FIG. 5 and 9; an optimized resolution] and the optimal target bitrate for the alternative stream [e.g. FIG. 5-7 and 9; an optimized bitrate] based on the optimal target bitrates of the plurality of resolutions; uploading encodings of the plurality of alternative streams at the selected optimal resolution and optimal target bitrate for each of the plurality of alternative streams to a set of servers that form part of a content distribution system [e.g. FIG. 1; servers; column 5 lines 20-32]; generating entries in a top level index file [e.g. log file including the information about the spatial and temporal features and/or other information of each frame of the encoded source video] describing at least one of the plurality of alternative video streams; and providing the generated top level index from the content distribution system to a set of one or more playback devices [e.g. clients] to adaptively stream the encodings of the plurality of alternative video streams to the set of playback devices e.g. FIG. 1-2; each source video is transcoded to a video 180 that has an optimized visual quality, bit rate, and resolution].

It is noted that Wang differs to the present invention in that Wang fails to explicitly disclose a concept of maximum bitrate.

However, Satou teaches the well-known concept of determining optimal target maximum bit rate for particular resolution of the plurality of resolutions [e.g. FIG. 1 and 9; high bitrate], and providing the generated top level index from the content distribution system to a set of one or more playback devices [e.g. FIG. 1 and 19; set top box]

It would have been obvious to the person of ordinary skill in the art at the time of the invention to modify the encoding system disclosed by Wang to add the teaching of determining maximum bitrate technique for encoder taught by Satou as above, in order to provide prevented subjective degradation in the image quality [See Satou; [0052]].

Regarding claim 3 and 11, Wang and Satou further disclose assembling encodings of a plurality of sections [e.g. video frames] for a given alternative stream into a single container file [e.g. Wang; FIG. 1-2; Satou: FIG. 1; coded stream].

Regarding claim 4 and 12, Wang and Satou further disclose generating entries in a container index within each container file indicating sizes of portions of the given alternative stream within the single container file [e.g. Wang; FIG. 1-2; number of pictures, resolutions 320X240 pixels].

Regarding claim 5 and 13, Wang and Satou further disclose adaptively streaming the encodings comprises receiving at least one request [e.g. Wang; FIG. 1-2; column 5 lines 20-32; sending request to the server from client] for an encoded section of one of the plurality of alternative streams from the set of playback devices based on the generated top level index [e.g. Wang; FIG. 1-2; playback devices; Satou: FIG. 1; coded streams].

Regarding claim 6 and 14, Wang and Satou further disclose generating entries in the top level index is performed in response to receiving a request for the source video content from the set of playback devices [e.g. Wang; FIG. 1-2; column 5 lines 20-32; sending request to the server from client].

Regarding claim 8 and 16, Wang and Satou further disclose both a width and a height of each resolution of the plurality of resolutions have an integer number of pixels [e.g. Wang; FIG. 1-2; resolutions 320X240 pixels; Satou: FIG. 9; 352X240 pixels].

Regarding claim 9 and 17, Wang and Satou further disclose each resolution of the plurality of resolutions has a same display aspect ratio and at least two resolutions of the plurality of resolutions have different sample aspect ratios [e.g. Satou: FIG. 24].

14. Claim 7 and 15 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Wang et al (US 8767825 B1) in view of Satou et al. (US 20110164679 A1) and Furbeck et al. (US 20110170408 A1).

Regarding claim 7 and 15, Wang and Satou further disclose identifying a plurality of resolutions [e.g. Wang: FIG. 1 and 5], but Wang and Satou fail to disclose the detail of identifying resolutions.

However, Furbeck teaches the well-known concept of identifying a plurality of resolutions comprises identifying resolutions with optimal target bitrates [See FIG. 6 and 8-9; paragraph 0101; seven thresholds levels to determine the maximum bitrate] within a predetermined percentage of a bitrate associated with an alternative video stream of the plurality of alternative video streams [e.g. FIG. 7-9 and 13; 14% or 70%].

It would have been obvious to the person of ordinary skill in the art at the time of the invention to modify the encoding system disclosed by Wang to add the teaching of determining maximum bitrate technique for encoder taught by Satou and Furbeck as above, in order to provide prevented subjective degradation in the image quality [See Satou; [0052]] and an improved system and method for responding intelligently and more effectively when such network congestion occurs [See Furbeck; [0032]].

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

i. Wang et al (US 8897370 B1).

ii. Han et al (US 20060083302 A1).

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHUBING REN whose telephone number is (571)272-2788. The examiner can normally be reached Monday-Friday 9am-5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Ustaris can be reached on 571-2727383. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ZHUBING REN/
Primary Examiner, Art Unit 2483

Notice of References Cited	Application/Control No. 17/181,996	Applicant(s)/Patent Under Reexamination Soroushian, Kourosh	
	Examiner ZHUBING REN	Art Unit 2483	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-8767825-B1	07-2014	Wang; Huisheng	H04N19/19	375/240.1
*	B	US-20110164679-A1	07-2011	Satou; Shinichi	H04N19/61	375/240.03
*	C	US-20110170408-A1	07-2011	Furbeck; David	H04L47/12	370/230
*	D	US-8897370-B1	11-2014	Wang; Huisheng	H04N19/139	375/240.2
*	E	US-20060083302-A1	04-2006	Han; Woo-Jin	H04N19/59	375/E7.199
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

Amazon/DivX
Exhibit 1002
Page 89

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/181,996	Soroushian, Kourosh
	Examiner	Art Unit
	ZHUBING REN	2483

CPC - Searched*		
Symbol	**Date**	**Examiner**
H04N19/146	05/10/2022	ZR
H04N19/172	05/10/2022	ZR
H04N21/234372	05/10/2022	ZR

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor search	11/22/2021	ZR
NPL search	11/22/2021	ZR
CPC search	11/24/2021	ZR
See attached search history	11/26/2021	ZR
CPC search	05/10/2022	ZR
See attached updated search notes	05/11/2022	ZR

Amazon/DivX
Exhibit 1002
Page 90

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/181,996	Soroushian, Kourosh
	Examiner	Art Unit
	ZHUBING REN	2483

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

Amazon/DivX
Exhibit 1002
Page 91

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/181,996	Soroushian, Kourosh
	Examiner	Art Unit
	ZHUBING REN	2483

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

CLAIMS

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

CLAIM		DATE								
Final	Original	11/22/2021	05/10/2022							
	1	✓	-							
	2		✓							
	3		✓							
	4		✓							
	5		✓							
	6		✓							
	7		✓							
	8		✓							
	9		✓							
	10		✓							
	11		✓							
	12		✓							
	13		✓							
	14		✓							
	15		✓							
	16		✓							
	17		✓							

Amazon/DivX
Exhibit 1002
Page 92

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. 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	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	2483
	Examiner Name	Zhubing Ren
	Attorney Docket Number	D1-02350.CON3

U.S. PATENT APPLICATION PUBLICATIONS

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
		20020089523	A1	2002-07-11	Hodgkinson	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	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]
		1260329	HK	B	2021-11-26	Soroushian		
		10-2363764	KR	B1	2022-02-11	Soroushian et al.		

EXAMINER SIGNATURE

Examiner Signature	/ZHUBING REN/	Date Considered	05/06/2022

*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. /Z.R/

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L242	1	"17181996"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 02:50 PM
L243	88	((("DIVX") near3 ("LLC"))).AS,AANM.	(USPAT)	ADJ	ON	ON	2021/11/04 03:46 PM
L244	178	((("SOROUSHIAN") near3 ("Kourosh"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/11/04 03:46 PM
L245	469	bit with rate with maximum same frame with rate with resolution and ("8" or L243)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 03:48 PM
L246	8	bit with rate with maximum same frame with rate with resolution and (L244 or L243)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 03:48 PM
L247	56	(bit near3 rate or bitrate) with maximum same frame near3 rate with resolution and (L244 or L243)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 03:50 PM
L248	14	(bit near3 rate or bitrate) with maximum same frame near3 rate with resolution with combination and (L244 or L243)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 03:50 PM
L249	166	encod$3 with maximum with bitrate same resolution same frame with rate	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 03:56 PM
L250	44	L249 AND ((H04N19/146 OR H04N19/172 OR H04N21/2662 OR H04N21/234372).CPC.)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 03:57 PM
L251	34	bitrate with video with quality with (maximum or highest) same resolution with frame with rate	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/11/04 03:57 PM
L252	25	L251 AND ((H04N19/146 OR H04N19/172 OR H04N21/2662 OR H04N21/234372).CPC.)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 03:58 PM
L253	187	(US-20130058393-$ or	(US-PGPUB; USPAT;	OR	ON	ON	2021/11/04

		US-20120170642-$ or US-20130051768-$ or US-20140355958-$ or US-20120177101-$ or US-20110164679-$ or US-20130044821-$ or US-20120173751-$ or US-20130058480-$ or US-20120179834-$ or US-20130051767-$ or US-20120170643-$ or US-20120170906-$ or US-20130051554-$ or US-20140003516-$ or US-20150019866-$ or US-10645429-$ or US-20130054958-$ or US-20180063590-$ or US-20150288996-$ or US-20170238030-$ or US-20190306501-$ or US-20190045219-$ or US-20180278975-$ or US-20180220153-$ or US-20200186854-$ or US-20190238910-$ or US-20140241421-$ or US-20140241420-$ or US-20170026445-$ or US-20120170915-$ or US-20130061045-$ or US-20190182524-$ or US-20140359681-$ or US-20130291031-$ or US-20140068096-$ or US-20160112382-$ or US-20180007451-$ or US-20140359680-$ or US-20130061040-$ or US-20170366833-$ or US-9986269-$ or US-20180131980-$ or US-20100262712-$ or US-10931982-$ or US-20180146222-$ or US-20130007263-$ or US-20170041604-$ or US-20190356928-$ or US-20160261879-$ or US-20150189344-$ or US-20150334435-$ or US-20150036757-$ or US-20190045220-$ or US-10708587-$ or US-20130322517-$ or US-20200059706-$ or US-20190297364-$ or US-20160044346-$ or US-	USOCR; EPO; JPO; DERWENT)				03:58 PM

		20170347135-$ or US-20210250608-$ or US-20140250473-$ or US-20170347136-$ or US-20180069910-$ or US-20140376720-$ or US-20150296205-$ or US-20170230655-$ or US-20200351496-$ or US-20170324793-$ or US-20190044995-$ or US-20190200053-$ or US-20180069909-$ or US-10992955-$ or US-20140359678-$ or US-20200106820-$ or US-20160197971-$ or US-20140250476-$ or US-20060129909-$ or US-9955195-$ or US-20070058684-$ or US-20160219303-$ or US-20170288865-$ or US-10462537-$ or US-20190149859-$ or US-20110135090-$ or US-10349104-$ or US-20200396451-$ or US-10231001-$ or US-20160337680-$ or US-20140269927-$ or US-20140365651-$ or US-20140348246-$ or US-9872021-$ or US-20210136429-$ or US-20190110057-$ or US-20150373421-$ or US-20060029127-$ or US-20200221152-$ or US-20180359477-$ or US-20180007355-$).did.					
L254	14	(bit near3 rate or bitrate) with maximum same frame near3 rate with resolution with combination and L253	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 03:59 PM
L255	49	(bit near3 rate or bitrate) with maximum same frame near3 rate with resolution and L253	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/04 04:00 PM
L256	2	("10931982").PN.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	ADJ	OFF	OFF	2021/11/22 05:14 PM
L257	24	maximum WITH bitrate SAME percent$4 SAME resolution WITH frame	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/11/24 01:46 PM

		WITH rate					
L258	179	maximum WITH bitrate SAME resolution WITH frame WITH rate	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/11/24 01:47 PM
L259	0	maximum near3 bite$rate WITH resolution	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/10 11:42 AM
L260	599	maximum near3 bit$rate WITH resolution	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/10 11:43 AM
L261	168	260 AND ((H04N19/146 OR H04N19/172 OR H04N21/2662 OR H04N21/234372).CPC.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/10 11:43 AM
L262	1	"20070024706"	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/10 11:55 AM
L263	2	"20110280307"	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/10 11:55 AM
L264	588	target near3 bit$rate WITH resolution	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN,	OR	ON	ON	2022/05/10 11:58 AM

			WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L265	316	264 AND ((H04N19/146 OR H04N19/172 OR H04N21/2662 OR H04N21/234372).CPC.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/10 11:59 AM
L266	38	"8767825"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/10 05:45 PM
L267	31	"8767825"	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/10 05:46 PM
L268	1	("8767825").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/10 05:46 PM
L269	1	268 AND resolution WITH bitrate	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/10 05:46 PM
L270	2	"20110170408"	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/11 09:56 AM
L271	0	270 AND maximum WITH bitrate WITH resolution	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/11 09:57 AM
L272	0	270 AND maximum WITH bitrate SAME resolution	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/11 09:57 AM
L273	2	270 AND maximum WITH bitrate AND resolution	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/11 09:57 AM
L274	2	"20110164679"	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/11 11:08 AM

L275	2	274 AND (encod$4 OR decod$4 OR cod$4) near3 (resolution OR bitrate OR parameter OR indicator)	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/11 11:09 AM
L276	0	274 AND (encod$4 OR decod$4 OR cod$4) near3 (resolution OR bitrate OR parameter OR indicator) SAME (bitstream OR syntax OR header)	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/11 11:11 AM
L277	2	274 AND (decod$4) near3 (resolution OR bitrate OR parameter OR indicator)	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/11 11:12 AM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF EFS TRANSMISSION

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on May 16, 2022 at or before 11:59 p.m. Pacific Time under the Rules of 37 CFR § 1.8.

/Grace Kang/
Grace Kang

Appl No.	: 17/181,996	Confirmation No. 1105
Applicant	: DIVX, LLC	
Filed	: February 22, 2021	
Title	: Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	
TC/A.U.	: 2483	
Examiner	: Zhubing Ren	
Docket No.	: D1-02350.CON3	
Customer No.	: 71897	

SUPPLEMENTAL AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2190 S. Towne Centre Place, Suite 300
Anaheim, CA 92806
May 16, 2022

Commissioner:

In replacement of the Amendment filed April 28, 2022, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (New) A method for encoding source content as a plurality of alternative video streams and adaptively streaming the plurality of alternative video streams, each having a bitrate, the method comprising:

identifying source video content;

identifying a plurality of resolutions for encoding of video content;

for each particular resolution of the plurality of resolutions:

encoding at least a portion of the source video content multiple times using the particular resolution and multiple different target bitrates for the particular resolution; and

evaluating quality for each of the multiple encodings;

selecting a plurality of resolution and target bitrate combinations for a plurality of alternative streams based on the evaluated quality of each of the multiple encodings;

uploading encodings of a plurality of sections of the source video content at each of the selected plurality of resolution and target bitrate combinations for the plurality of alternative streams to a set of servers that form part of a content distribution system;

generating entries in a top level index file describing at least one of the plurality of alternative video streams;

providing the generated top level index from the content distribution system to one or more playback devices capable of performing adaptive streaming using the encodings of the plurality of sections; and

responding to requests from the one or more playback devices, where the requests include requests for specific encodings from the encodings of the plurality of sections.

3. (New) The method of claim 2 further comprising assembling the encodings of the plurality of sections for a given alternative stream into a video container file.

4. (New) The method of claim 3 further comprising generating entries in a container index within each container file indicating sizes of portions of the given video stream within the video container file.

5. (New) The method of claim 2, wherein adaptively streaming the encodings comprises receiving at least one request for an encoded section of one of the plurality of alternative streams from the set of playback devices based on the generated top level index.

6. (New) The method of claim 2, wherein generating entries in the top level index is performed in response to receiving a request for the source video content from the set of playback devices.

7. (New) The method of claim 2, wherein the target bitrate for each resolution is determined using a formula.

8. (New) The method of claim 2, wherein the target bitrate of a given resolution is determined using experimentation.

9. (New) The method of claim 2, wherein identifying a plurality of resolutions comprises identifying resolutions with target bitrates within a predetermined percentage of a bitrate associated with an alternative video stream of the plurality of alternative video streams.

10. (New) The method of claim 2, wherein both a width and a height of each resolution of the plurality of resolutions have an integer number of pixels.

11. (New) The method of claim 2, wherein each resolution of the plurality of resolutions has a same display aspect ratio and at least two resolutions of the plurality of resolutions have different sample aspect ratios.

12. (New) A non-transitory machine readable medium containing processor instructions for encoding source content as a plurality of alternative video streams and adaptively streaming the plurality of alternative video streams, each having a bitrate, where execution of the instructions by a processor causes the processor to perform a process that comprises:

identifying source video content;

identifying a plurality of resolutions for encoding of video content;

for each particular resolution of the plurality of resolutions:

encoding at least a portion of the source video content multiple times using the particular resolution and multiple different target bitrates for the particular resolution; and

evaluating quality for each of the multiple encodings;

selecting a plurality of resolution and target bitrate combinations for a plurality of alternative streams based on the evaluated quality of each of the multiple encodings;

uploading encodings of a plurality of sections of the source video content at each of the selected plurality of resolution and target bitrate combinations for the plurality of alternative streams to a set of servers that form part of a content distribution system;

generating entries in a top level index file describing at least one of the plurality of alternative video streams;

providing the generated top level index from the content distribution system to one or more playback devices capable of performing adaptive streaming using the encodings of the plurality of sections; and

responding to requests from the one or more playback devices, where the requests include requests for specific encodings from the encodings of the plurality of sections.

13. (New) The non-transitory machine readable medium of claim 12, wherein the process further comprises assembling encodings of the plurality of sections for a given alternative stream into a single container file.

14. (New) The non-transitory machine readable medium of claim 13, wherein the process further comprises generating entries in a container index within each container file indicating sizes of portions of the given alternative stream within the single container file.

15. (New) The non-transitory machine readable medium of claim 12, wherein adaptively streaming the encodings comprises receiving at least one request for an encoded section of one of the plurality of alternative streams from the set of playback devices based on the generated top level index.

16. (New) The non-transitory machine readable medium of claim 12, wherein generating entries in the top level index is performed in response to receiving a request for the source video content from the set of playback devices.

17. (New) The non-transitory machine readable medium of claim 14, wherein the target bitrate for each resolution is determined using a formula.

18. (New) The non-transitory machine readable medium of claim 14, wherein identifying a plurality of resolutions comprises identifying resolutions with target bitrates within a predetermined percentage of a bitrate associated with an alternative video stream of the plurality of alternative video streams.

19. (New) The non-transitory machine readable medium of claim 14, wherein both a width and a height of each resolution of the plurality of resolutions have an integer number of pixels.

Amazon/DivX
Exhibit 1002
Page 104

20. (New) The non-transitory machine readable medium of claim 14, wherein each resolution of the plurality of resolutions has a same display aspect ratio and at least two resolutions of the plurality of resolutions have different sample aspect ratios.

Amazon/DivX
Exhibit 1002
Page 105

REMARKS/ARGUMENTS

It is respectfully requested that this supplemental amendment be entered in place of the Amendment filed April 28, 2022. No new matter is entered by these amendments. Should there be any questions about this amendment, Applicant requests that the Examiner contact Applicant's representative at the number below.

The Commissioner is authorized to charge any fee under 37 CFR 1.16 and 1.17 that may be required during the **entire pendency** of the application to Deposit Account No. 50-4407. Please show our docket number with any transaction to the Deposit Account.

Respectfully submitted,
KPPB LLP

/Paul J. Lee/
Paul J. Lee
Registration No. 69,375
949.852.0000

PJL/gk

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/181,996	**05/16/2022 02:20:39 PM ET**	**D1-02350.CON3**

Title of Invention

Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1105	FILED BY	Grace Kang
PATENT CENTER #	60670336	FILING DATE	02/22/2021
CUSTOMER #	71897	FIRST NAMED INVENTOR	Kourosh Soroushian
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Paul Lee

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
02350CON3suppamendment-APP.TEXT.docx	7	Application body structured text document	27 KB
Warning: Dynamic dates have been converted to static dates. Bookmarks were found and have been removed.			
02350CON3suppamendment.pdf	7	Auxiliary PDF of Application	127 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)

02350CON3suppamendment-APP.TEXT.docx	F053EF50D7AC9EDD200C21D260145E23C569C1D86D0C48A691955D4FE9B41D8B3DFC9412CF5D27D3C7E98B066C66A6D58B7529D85E8F4BCED9FD2CE999B9C309
02350CON3suppamendment.pdf	7F5BC5A68C2AC139E0164B00AC40FEC048153A9539255A4BFD9645007BEABE6740AE39B5F11834DD34D69E823F9B77EC296C935C9F393BC5D4CC5961894DB743

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 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.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF EFS TRANSMISSION

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on August 9, 2022 at or before 11:59 p.m. Pacific Time under the Rules of 37 CFR § 1.8.

/Leslie Park/
Leslie Park

Appl No.	: 17/181,996	Confirmation No. 1105
Applicant	: DIVX, LLC	
Filed	: February 22, 2021	
Title	: Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	
TC/A.U.	: 2483	
Examiner	: Zhubing Ren	
Docket No.	: D1-02350.CON3	
Customer No.	: 71897	

AMENDMENT ACCOMPANYING RCE

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2190 S. Towne Centre Place, Suite 300
Anaheim, CA 92806
August 9, 2022

Commissioner:

In response to the Office Action mailed May 16, 2022, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Currently Amended) A method for encoding source content as a plurality of alternative video streams and adaptively streaming the plurality of alternative video streams, each having a bitrate, the method comprising:

~~for each of a plurality of alternative streams:~~

identifying source video content;

identifying a plurality of resolutions for encoding of video content;

for each particular resolution of the plurality of resolutions~~, determining an optimal target maximum bitrate by~~:

encoding at least a portion of the source video content multiple times using the particular resolution and ~~each of a plurality of~~ multiple different target bitrates for the particular resolution; and

evaluating [[a]]quality ~~of the at least a portion of source content encoded at~~for each of the multiple encodings;~~plurality of bitrates; and~~

selecting a plurality of resolution and target bitrate combinations for a plurality of alternative streams based on the evaluated quality of each of the multiple encodings;~~of the plurality of bitrates as the optimal target maximum bitrate for the particular resolution based on the evaluated quality of the at least a portion of source content encoded at each of the plurality of bitrates; and~~

~~selecting an optimal resolution and the optimal target maximum bitrate for the alternative stream based on the optimal target maximum bitrates of the plurality of resolutions;~~

uploading encodings of [[the]]a plurality of ~~alternative streams~~ sections of the source video content at each of the selected ~~optimal~~plurality of resolution and ~~optimal~~

target ~~maximum~~ bitrate combinations for ~~each of~~ the plurality of alternative streams to a set of servers that form part of a content distribution system;

generating entries in a top level index [[file]]describing at least one of the plurality of alternative ~~video~~ streams;[[and]]

providing the generated top level index from the content distribution system to ~~a set of~~ one or more playback devices [[to]]capable of performing adaptive[[ly]] streaming using the encodings of the plurality of ~~alternative video streams to~~sections; and

responding to requests from the ~~set of~~one or more playback devices, where the requests include requests for specific encodings from the encodings of the plurality of sections.

3. (Currently Amended) The method of claim 2 further comprising assembling the encodings of [[a]]the plurality of sections for a given alternative stream into a ~~single~~ video container file.

4. (Currently Amended) The method of claim 3 further comprising generating entries in a container index within each container file indicating sizes of portions of the given alternative stream within the ~~single~~ video container file.

5. (Currently Amended) The method of claim 2, wherein adaptively streaming the encodings comprises receiving at least one request for an encoded section of one of the plurality of alternative streams from the ~~set of~~one or more playback devices based on the generated top level index.

6. (Currently Amended) The method of claim 2, wherein generating entries in the top level index is performed in response to receiving a request for the source video content from the ~~set of~~one or more playback devices.

7. (Currently Amended) The method of claim 2, wherein identifying a plurality of resolutions comprises identifying resolutions with ~~optimal~~ target bitrates within a

predetermined percentage of a bitrate associated with an alternative ~~video~~ stream of the plurality of alternative ~~video~~ streams.

8. (Previously Presented) The method of claim 2, wherein both a width and a height of each resolution of the plurality of resolutions have an integer number of pixels.

9. (Previously Presented) The method of claim 2, wherein each resolution of the plurality of resolutions has a same display aspect ratio and at least two resolutions of the plurality of resolutions have different sample aspect ratios.

10. (Currently Amended) A non-transitory machine readable medium containing processor instructions for encoding source content as a plurality of alternative video streams and adaptively streaming the plurality of alternative video streams, each having a bitrate, where execution of the instructions by a processor causes the processor to perform a process that comprises:

~~for each of a plurality of alternative streams:~~

identifying source video content;

identifying a plurality of resolutions for encoding of video content;

for each particular resolution of the plurality of resolutions~~, determining an optimal target maximum bitrate by~~:

encoding at least a portion of the source video content multiple times using the particular resolution and ~~each of a plurality of~~ multiple different target bitrates for the particular resolution; and

evaluating [[a]]quality ~~of the at least a portion of source content encoded at~~for each of the multiple encodings;~~plurality of bitrates; and~~

selecting a plurality of resolution and target bitrate combinations for a plurality of alternative streams based on the evaluated quality of each of the multiple encodings;~~of the plurality of bitrates as the optimal target maximum bitrate for the particular resolution based on the evaluated quality of the at least a portion of source content encoded at each of the plurality of bitrates; and~~

~~selecting an optimal resolution and the optimal target maximum bitrate for the alternative stream based on the optimal target maximum bitrates of the plurality of resolutions;~~

uploading encodings of [[the]]a plurality of ~~alternative streams~~ sections of the source video content at each of the selected ~~optimal~~plurality of resolution and ~~optimal~~ target ~~maximum~~ bitrate combinations for ~~each of~~ the plurality of alternative streams to a set of servers that form part of a content distribution system;

generating entries in a top level index [[file]]describing at least one of the plurality of alternative ~~video~~ streams;[[and]]

providing the generated top level index from the content distribution system to ~~a set of~~ one or more playback devices [[to]]capable of performing adaptive[[ly]] streaming using the encodings of the plurality of ~~alternative video streams to~~sections; and

responding to requests from the ~~set of~~one or more playback devices, where the requests include requests for specific encodings from the encodings of the plurality of sections.

11. (Currently Amended) The non-transitory machine readable medium of claim 10, wherein the process further comprises assembling the encodings of [[a]]the plurality of sections for a given alternative stream into a ~~single~~ video container file.

12. (Currently Amended) The non-transitory machine readable medium of claim 11, wherein the process further comprises generating entries in a container index within each container file indicating sizes of portions of the given alternative stream within the ~~single~~ video container file.

13. (Currently Amended) The non-transitory machine readable medium of claim 10, wherein adaptively streaming the encodings comprises receiving at least one request for an encoded section of one of the plurality of alternative streams from the ~~set of~~one or more playback devices based on the generated top level index.

14. (Currently Amended) The non-transitory machine readable medium of claim 10, wherein generating entries in the top level index is performed in response to receiving a request for the source video content from the ~~set of~~one or more playback devices.

15. (Currently Amended) The non-transitory machine readable medium of claim 10[[2]], wherein identifying a plurality of resolutions comprises identifying resolutions with ~~optimal~~ target bitrates within a predetermined percentage of a bitrate associated with an alternative ~~video~~ stream of the plurality of alternative ~~video~~ streams.

16. (Currently Amended) The non-transitory machine readable medium of claim 10[[2]], wherein both a width and a height of each resolution of the plurality of resolutions have an integer number of pixels.

17. (Currently Amended) The non-transitory machine readable medium of claim 10[[2]], wherein each resolution of the plurality of resolutions has a same display aspect ratio and at least two resolutions of the plurality of resolutions have different sample aspect ratios.

18. (New) The method of claim 2, wherein the target bitrate for each resolution is determined using a formula.

19. (New) The method of claim 2, wherein the target bitrate of a given resolution is determined using experimentation.

20. (New) The non-transitory machine readable medium of claim 10, wherein the target bitrate for each resolution is determined using a formula.

REMARKS/ARGUMENTS

SUMMARY OF THE OFFICE ACTION

In the Office Action dated May 16, 2022, the following rejections were made:

- Claims 2-17 are rejected on the ground of nonstatutory double patenting over claim 1 of U.S. Patent No. 10,931,982;
- Claims 2-6, 8-14, and 16-17 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US 8767825 B1) (hereinafter "Wang") in view of Satou et al. (US 20110164679 A1) (hereinafter "Satou");
- Claim 7 and 15 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Wang in view of Satou and Furbeck et al. (US 20110170408 A1) (hereinafter "Furbeck").

SUMMARY OF THE AMENDMENTS

Claims 2-20 are currently pending in this application. Claims 2-7 and 10-17 have been amended. Support for amendments of claims 2 and 10 can be found throughout the specification, and at least at paragraphs 0042-0043. Claims have also been amended to provide proper antecedent basis, to clarify language, and correct dependencies. Claims 18-20 have been added. No claims have been cancelled. Applicant submits that no new matter has been introduced in these amendments.

NONSTATUTORY DOUBLE PATENTING REJECTIONS

Claims 2-17 are rejected on the grounds of nonstatutory double patenting. The Office Action states that claims 2-17 are not patentably distinct from claim 1 of U.S. Patent No. 10,931,982. Applicant respectfully disagrees; however, in order to advance the prosecution of the instant application, Applicant has filed a Terminal Disclaimer with respect to this patent. Therefore, Applicant respectfully requests that the nonstatutory double patenting rejections as to U.S. Patent 10,931,982 be withdrawn.

35 U.S.C. § 103 REJECTIONS

REJECTION OF CLAIM 2

With respect to claim 2, the Office Action states the claim is unpatentable over Wang in view of Satou. As discussed below, Applicant respectfully submits that this combination of references fails to support a *prima facie* case of obviousness with respect to claim 2.

Wang

Wang describes techniques for adaptive video transcoding based on a calculation of video coding complexity, or a measure of a source video's encoding difficulty. (Wang, Abstract.)

The Proposed Combination Fails to Teach all Aspects of Claim 2

Claim 2 as amended recites:

> for each particular resolution of the plurality of resolutions:
>
> encoding at least a portion of the source video content multiple times using the particular resolution and multiple different target bitrates for the particular resolution; and
>
> evaluating quality for each of the multiple encodings;
>
> selecting a plurality of resolution and target bitrate combinations for a plurality of alternative streams based on the evaluated quality of each of the multiple encodings;
>
> uploading encodings of a plurality of sections of the source video content at each of the selected plurality of resolution and target bitrate combinations for the plurality of alternative streams to a set of servers that form part of a content distribution system;
>
> generating entries in a top level index describing at least one of the plurality of alternative streams;
>
> providing the generated top level index from the content distribution system to one or more playback devices . . .

Applicant respectfully submits that the cited references do not teach or suggest the limitations of claim 2 as amended. In rejecting similar features, the Office Action refers to

some figures in Wang (Office Action, p. 4). Element 780 of Fig. 7 is cited in reference to encoding video content at a particular resolution and at different bitrates. In Wang, the section that discusses Fig. 7 (col. 18, line 53 to col. 19, line 10) explains that the process for adaptive bitrate transcoding sets an optimal bitrate of a source video. However, the process uses a previously calculated video coding complexity score, other parameters and models to calculate an initial target bitrate. This initial target bitrate is then refined based on a target resolution and target frame rate. The source video is then encoded using this refined bitrate. Nowhere in this process is the quality of the encoded video then evaluated, with a selection of resolution or bitrate being made based on such evaluated quality, as is recited in claim 2.

With respect to "evaluating a quality . . ." the Office Action mentions, "FIG. 7-9; optimized bitrate and visual quality; visual quality is determined by its encoding bitrate" (p. 4). However, the referenced terminology is used to describe Fig. 8, which describes a system for executing an entirely different process, for adaptive resolution transcoding, that is unrelated to the adaptive bitrate encoded video produced at element 780 (col. 19, lines 14 to 43). Fig. 9 illustrates a process for adaptive resolution transcoding performed on the system shown in Fig. 8. Similar to the adaptive bitrate transcoding of Fig. 7, the resolution is determined using a complexity score and other parameters, and then the video is encoded accordingly (col. 22, lines 7-30).

Applicant has also not found any teaching of evaluating the quality of encoded video in other mentioned figures. Training the models in Fig. 5 occurs prior to the encoding of the video at step 780. Indeed, since the focus of Wang's techniques is to calculate bitrate and resolution based on a complexity score and other parameters *prior* to encoding (*see* Fig. 7, 710-730; Fig. 9, 920), it would have no reason to then select a bitrate or resolution based on evaluated quality *after* encoding its source video.

Applicant has also not found any teaching in the cited references of "uploading encodings of a plurality of sections of the source video content at each of the selected plurality of resolution and target bitrate combinations for the plurality of alternative streams to a set of servers that form part of a content distribution system" as recited in claim 2 as amended. In rejecting similar features, the Office action cites to "FIG. 1;

servers; column 5 lines 20-32" (Office action, p. 4). With respect to Fig. 1A, col. 6, lines 10-14 states only that "The ingest server 106 receives user uploaded videos and stores the videos in the video database 108. The video server 104 serves the videos from the video database 108 in response to user video hosting service requests." Col. 5, lines 20-32 only generally mentions returning transcoded source videos to clients.

The Office Action also does not assert and Applicant has not found any teaching in Satou of the above-discussed limitations.

Further, the log file of Wang being cited for the top level index of claim 2 (Office action, p. 4) includes coding information including spatial and temporal features for each video frame (Wang, col. 8, line 60 to col. 9, line 18). These features are extracted and used to calculate the source video's coding complexity score (Wang, col. 9, lines 24-27; col. 10, lines 4-7), which is then "used by other modules of the adaptive transcoding system 102 for transcoding the source video" (col. 13, line 67 to col. 14, line 2). Thus, there is no reason for the log file to be sent to any playback device, as the top level index is in claim 2. Applicant is also unable to identify any teaching of a top level index being generated or sent in the mentioned sections of Satou (Office action, p. 5, *citing* "FIG. 1 and 19; set top box").

Therefore, Applicant respectfully submits that the combination of Wang in view of Satou fails to teach each and every limitation of claim 2. Accordingly, Applicant respectfully submits that claim 2 is patentable due to the failure of the identified combination of teachings to disclose the limitations of claim 2 as amended.

Conclusion

For reasons including those stated above, Applicant respectfully submits that the proposed combination of Wang in view of Satou fails to support a *prima facie* case of obviousness with respect to claim 2. Accordingly, Applicant respectfully requests that the rejection of claim 2 be withdrawn.

REJECTIONS OF CLAIMS 3-20

Claim 10 as amended includes limitations similar to that of amended claim 2. Thus, Applicant respectfully submits that this claim is allowable for reasons similar to those discussed above with regard to claim 2.

Claims 3-9 and 18-19 depend from claim 2, and claims 11-17 and 20 depend from claim 10. Applicant submits that these dependent claims are patentable for at least reasons similar to those outlined above with respect to claim 11, and because Applicant has not found any teaching in Furbeck that cures the deficiencies of Wang and Satou.

Applicant thus respectfully requests that the rejections to claims 3-20 be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is in condition for allowance. Accordingly, reconsideration of the application and allowance of the claims are respectfully requested. Although the present paper may include a combination of alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding that previously pending claims in this application are not patentable over the cited references. Rather, any alterations and/or characterizations are made to strictly facilitate prosecution of this application. As such, reviewers of this or any parent, child, or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

Applicant has submitted amendments and arguments believed to be sufficient to overcome all of the outstanding rejections. Consequently, Applicant has not advanced every argument for the allowability of the claims over the references of record. As such, Applicant does not acquiesce to any of the Examiner's statements or characterizations not specifically traversed. If the Examiner should have any remaining questions or objections, a telephone interview to discuss and resolve these issues is respectfully requested.

The Commissioner is authorized to charge any fee under 37 CFR 1.16 and 1.17 that may be required during the **entire pendency** of the application to Deposit Account No. 50-4407. Please show our docket number with any transaction to the Deposit Account.

Respectfully submitted,

KPPB LLP

/Faye H. Teng/

Faye H. Teng
Registration No. 62,444
949.852.0000

FHT/lp

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: DIVX, LLC

Application No./Patent No.: 17/181,996 Filed/Issue Date: February 22, 2021

Titled: Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels

DIVX, LLC, a limited liability company

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Kourosh Soroushian To: DivX, LLC

   The document was recorded in the United States Patent and Trademark Office at

   Reel 056457, Frame 0711, or for which a copy thereof is attached.

2. From: DivX, LLC To: Sonic IP, Inc.

   The document was recorded in the United States Patent and Trademark Office at

   Reel 056457, Frame 0744, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). 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. 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.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: Sonic IP, Inc. To: DivX CF Holdings LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 056457, Frame 0773, or for which a copy thereof is attached.

4. From: DivX CF Holdings LLC To: DIVX, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 056457, Frame 0815, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

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

/Faye H. Teng/	August 9, 2022
Signature	Date
Faye H. Teng	62,444
Printed or Typed Name	Title or Registration Number

PTO/AIA/26 (04-14)
Approved for use through 11/30/2020. 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 displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) D1-02350.CON3

In re Application of: DIVX, LLC

Application No.: 17/181,996

Filed: February 22, 2021

For: Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels

The applicant, DIVX, LLC, owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 10,931,982 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 62,444

/Faye H. Teng/ — Signature
August 9, 2022 — Date

Faye H. Teng — Typed or printed name

Attorney of Record — Title
949.852.0000 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. 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. 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.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF EFS TRANSMISSION

I hereby certify that this correspondence is being electronically filed with the United States Patent and Trademark Office on August 9, 2022 at or before 11:59 p.m. Pacific Time under the Rules of 37 CFR § 1.8.

/Leslie Park/
Leslie Park

Appl No.	: 17/181,996	Confirmation No. 1105
Applicant	: DIVX, LLC	
Filed	: February 22, 2021	
Title	: Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels	
TC/A.U.	: 2483	
Examiner	: Zhubing Ren	
Docket No.	: D1-02350.CON3	
Customer No.	: 71897	

TRANSMITTAL OF POWER OF ATTORNEY BY APPLICANT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

2190 S. Towne Centre Place, Suite 300
Anaheim, CA 92806
August 9, 2022

Commissioner:

Attached hereto is the Power of Attorney by Applicant for the above-referenced application.

The Commissioner is authorized to charge any fee under 37 CFR 1.16 and 1.17 which may be required during the **entire pendency** of the application to Deposit Account No. 50-4407. Please show our docket number with any transaction to the Deposit Account.

Respectfully submitted,
KPPB LLP

/Faye H. Teng/
Faye H. Teng
Registration No. 62,444
949.852.0000

FHT/lp

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/181,996	08/09/2022 05:40:43 PM ET	D1-02350.CON3

Title of Invention

Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1105	FILED BY	Leslie Park
PATENT CENTER #	60857459	AUTHORIZED BY	Faye Teng
CUSTOMER #	71897	FILING DATE	02/22/2021
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Kourosh Soroushian

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 3003	E202289H41171487	Leslie Park

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
504407	37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges)

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1801	REQUEST FOR CONTINUED EXAMINATION (RCE) - 1ST REQUEST (SEE 37 CFR 1.114)	1360.00	1	1360.00
1814	STATUTORY DISCLAIMER, INCLUDING TERMINAL DISCLAIMER	170.00	1	170.00
			TOTAL AMOUNT:	$1,530.00

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 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.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. 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	17/181,996
	Filing Date	February 22, 2021
	First Named Inventor	Kourosh Soroushian
	Art Unit	2483
	Examiner Name	Zhubing Ren
	Attorney Docket Number	D1-02350.CON3

U.S. PATENT APPLICATION PUBLICATIONS

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
		20080069204	A1	2008-03-20	Uchiike	
		20130028534	A1	2013-01-31	Tatsuka et al.	
		20130097309	A1	2013-04-18	Ma et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	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]
		10-2414735	KR	B1	2022-06-24	Soroushian et al.		

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.

[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.

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

71897 7590 11/21/2022

KPPB LLP
2190 S. Towne Centre Place
Suite 300
Anaheim, CA 92806

EXAMINER	
REN, ZHUBING	
ART UNIT	PAPER NUMBER
2483	

DATE MAILED: 11/21/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/181,996	02/22/2021	Kourosh Soroushian	D1-02350.CON3	1105

TITLE OF INVENTION: Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	02/21/2023

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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. 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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

Amazon/DivX
Exhibit 1002
Page 128

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

71897 7590 11/21/2022

KPPB LLP
2190 S. Towne Centre Place
Suite 300
Anaheim, CA 92806

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/181,996	02/22/2021	Kourosh Soroushian	D1-02350.CON3	1105

TITLE OF INVENTION: Systems and Methods for Encoding and Streaming Video Encoded Using a Plurality of Maximum Bitrate Levels

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	02/21/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
REN, ZHUBING	2483	375-240010

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/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

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

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Amazon/DivX
Exhibit 1002
Page 129

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.
17/181,996	02/22/2021	Kourosh Soroushian	D1-02350.CON3	1105

71897 7590 11/21/2022

KPPB LLP
2190 S. Towne Centre Place
Suite 300
Anaheim, CA 92806

EXAMINER	
REN, ZHUBING	
ART UNIT	**PAPER NUMBER**
2483	

DATE MAILED: 11/21/2022

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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.

Amazon/DivX
Exhibit 1002
Page 130

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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 30 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.

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 disclosure of these records is required by the Freedom of Information Act.
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 inspection 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.

Notice of Allowability	Application No. 17/181,996	Applicant(s) Soroushian, Kourosh	
	Examiner ZHUBING REN	Art Unit 2483	AIA (FITF) Status No

-- 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 amendment filed on 8/9/2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 2-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   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.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/ZHUBING REN/
Primary Examiner, Art Unit 2483

Amazon/DivX
Exhibit 1002
Page 132

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Allowable Subject Matter

1. Claims **2-20** are allowed.

2. The following is an examiner's statement of reasons for allowance: **the prior art of record fails to explicitly (or expressly) anticipate or render obvious each limitation as recited in the independent claims**.

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

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHUBING REN whose telephone number is (571)272-2788. The examiner can normally be reached Monday-Friday 9am-5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Ustaris can be reached on 571-2727383. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ZHUBING REN/
Primary Examiner, Art Unit 2483