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General

BASIC INFORMATION

Application No.:	200104849-5	Filing date:	03/02/2000
PCT Application No.:	PCT/KR00/00088		
Publication Number:	82857		
Priority claimed:	05/02/1999 US 60/118,750		
Title of Invention:	DIGITAL VIDEO PROCESSING METHOD AND APPARATUS THEREOF		
Applicant/Proprietor:	SAMSUNG ELECTRONICS CO., LTD. (KR) 416 MAETAN-DONG PALDAL-GU SUWON-CITY KYUNGI-DO 442-373 REPUBLIC OF KOREA THE REGENTS OF THE UNIVERSITY OF CALIFORNIA (US) 12TH FLOOR 1111 FRANKLIN STREET OAKLAND CA 94607-5200 CALIFORNIA UNITED STATES OF AMERICA		
Inventor(s):	SHIN, HYUN, DOO 510-1302 MUJIGAE MAEUL CHEONGGU APT., 221 KUMI-DONG BUNDANG-GU, SUNGNAM-CITY, KYUNGI-DO 463-500 REPUBLIC OF KOREA CHOI, YANG, LIM 102-1112 WOOMAN SUNKYUNG APT., 105 WOOMAN-DONG, PALDAL-GU, KYUNGI-DO 442-190 REPUBLIC OF KOREA MANJUNATH, B., S. DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING UNIVERSITY OF CALIFORNIA SANTA BARBARA CA 93106-9560 CALIFORNIA UNITED STATES OF AMERICA		
International Patent Classification:	H04N 9/00		
Patent Agent:	HAQ & NAMAZIE PARTNERSHIP		
PCT Publication No.:	WO 00/47000		

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SINGAPORE PATENT APPLICATION NUMBER

2001 04849-5

Note: [Law] – Reference to the Patents Act also includes a corresponding reference to the Patents Rules.
Please tick (✓) relevant box ☐ after the corresponding checks and confirmations have been made.

- 1 **APPLICANTS**
Reference includes Section 19 [Law] ☒ • Confirm that there are no changes (name/ address/ legal entity), since filing.
- 2 **INVENTORS**
Reference includes Section 24 [Law] ☒ • Confirm that there are no changes (name/ address) since the mention of inventors was furnished.
☒ • If there are changes, confirm that steps have been taken to meet statutory requirements.
- 3 **AGENTS (if any)**
Reference includes rule 90 [Law] ☒ • Confirm that the Declaration of Authorization (where applicable) has been furnished.
☒ • Confirm that there are no changes (name/address for service/entity), since filing.
☒ • If there are changes, confirm that steps have been taken to meet statutory requirements.
- 4 **PRIORITY CLAIMS (if any)**
Reference includes Section 17 [Law] ☒ • Confirm (if any) that the details furnished in the patent application are in order.
☒ • Confirm that the Statutory requirements (including deadlines & the furnishing of translations) are met.
- 5 **INTERNATIONAL EXHIBITIONS (if relevant)**
Reference includes Section 14 [Law] ☒ • Confirm (where relevant) that the statutory requirements (including deadlines) are met.
- 6 **BUDAPEST TREATY (if relevant)**
Reference includes 4th Schedule [Law] ☒ • Confirm (where relevant) that the statutory requirements (including deadlines) are met.
- 7 **FILING DATE NOTIFICATION**
Reference includes Section 26 [Law] ☒ • Confirm that the statutory requirements are met.
☒ • For PCT (SG) National Phase Entry applications, please confirm that the National Phase entry requirements are met. Confirm also on the following:
☒ For Chapter I entries, SG had been designated, and for Chapter II entries, SG had been elected.
☒ National Phase entries were made before the expiry of the prescribed deadlines.
☒ Necessary Translations have been furnished and within the prescribed deadlines.
- 8 **FORMALITIES EXAMINATION**
Reference includes Section 28 [Law] ☒ • Confirm that the statutory requirements (including deadlines) are met.
- 9 **SEARCH/EXAM REPORT OR EQUIVALENTS**
Reference includes Section 29 [Law] ☒ • Confirm that the statutory requirements (including deadlines) are met.
- 10 **PRE-GRANT AMENDMENTS**
Reference includes Sections 31, 84 [Law] ☒ • If made, confirm that the statutory requirements (including deadlines) are met.
- 11 **CORRECTIONS**
Reference includes Section 107 [Law] ☒ • If sought, confirm that the statutory requirements are met.
- 12 **DESCRIPTION, CLAIMS & DRAWINGS (if any Drawings)**
Reference includes Sections 25, 31, 84 [Law] ☒ • if, during the course of the application, replacement sheets have been furnished, please confirm the replacement sheets include a duly marked copy and correspond with the sheets to be replaced.
☒ • For PCT (SG) National Phase entry where translations to the PCT application were furnished, please also confirm that the replacement sheets* (if any) and/or translations thereof, correspond with the sheets to be replaced.
☒ • *Amendments might also have been made during the International Phase. Please also refer to the International Preliminary Examination Report for the PCT (SG) Chapter II applications.
- 13 **EXTENSIONS OF TIME**
Reference includes Section 115 [Law] ☒ • If sought, confirm that the statutory requirements (including deadlines) are met.
- 14 **GRANT OF PATENT**
Reference includes Sections 30, 32 [Law] ☒ • Confirm that the statutory requirements (including deadlines) are met.

Upon completion of this form, please enter name of applicant/ agent & date of completion before attaching it with Patent Form 14.

Murgiana Haq of Haq & Selvam

6001432592 5 Aug 03

PATENT COOPERATION TREATY

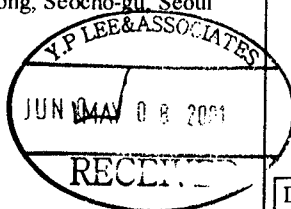
From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

To: LEE, Young Pil Cheonghwa Bldg., 1571-18, Seocho-dong, Seocho-gu, Seoul 137-073, Republic of KOREA
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Date of mailing (day/month/year) 30 MAY 2001 (30.05.2001)
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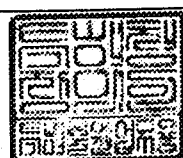
Applicant's or agent's file reference SH-14643-PCT	IMPORTANT NOTIFICATION
International application No. PCT/KR00/00088	International filing date (day/month/year) 03 FEBRUARY 2000 (03.02.2000)
	Priority date (day/months/year) 05 FEBRUARY 1999 (05.02.1999)
Applicant Samsung Electronics Co., Ltd. et al	

1. The applicant is hereby notified that International Preliminary Examining Authority transmits here with the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**
 The applicant must enter the national phase before each elected office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

 Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

 For further details in the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/KR Korean Intellectual Property Office Government Complex-Daejeon, Dunsan-dong, Seo-gu, Daejeon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer COMMISSIONER Telephone No. -82-42-481-5210
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SH-14643-PCT	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/KR00/00088	International filing date (day/month/year) 03 FEBRUARY 2000 (03.02.2000)	Priority date (day/month/year) 05 FEBRUARY 1999 (05.02.1999)	
International Patent Classification (IPC) or national classification and IPC IPC7 H04N 9/00			
Applicant Samsung Electronics Co., Ltd. et al			

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>4</u> sheets, including this cover sheet. ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of _____ sheets.
3.	This report contains indications relating to the following items: - I ☒ Basis of the report - II ☐ Priority - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability - IV ☐ Lack of unity of invention - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement - VI ☒ Certain documents cited - VII ☐ Certain defects in the international application - VIII ☐ Certain observations on the international application

Date of submission of the demand 14 AUGUST 2000 (14.08.2000)	Date of completion of this report 29 MAY 2001 (29.05.2001)
Name and mailing address of the IPEA/KR Korean Intellectual Property Office Government Complex-Daejeon, Dunsan-dong, Seo-gu, Daejeon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer KIM, Hee Gon Telephone No. 82-42-481-5770



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR00/00088

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement) under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet _____

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR00/00088

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-35	YES
	Claims		NO
Inventive step (IS)	Claims	2-14, 16-35	YES
	Claims	1, 15	NO
Industrial applicability (IA)	Claims	1-35	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The following documents are referred to:

D1 = jp 08-320933

D2 = jp 03-102479

1. Novelty

The subject-matter according to claims 1 to 35 is novel pursuant to Art.33(2) PCT

2. Inventive step

The invention as defined in the claims 1, 15 is to a method for processing digital images received in the form of compressed video streams, comprising the step of determining a region intensity histogram based on information on motion compensation of inter frames.

D1, which is considered to represent the the closet prior art, is that a pair of plural (at least fifty) surface polar lines corresponding to a pair of pictures for a scene are determined by virtually setting up specific number of revolution between two visual points of the pictures (process a). A picture element density histogram is prepared along each surface polar line (process b). The sum of rectangular differences of picture element density levels of each histogram for the surface polar lines corresponding to the pictures is determined (process c). The sum of rectangles is determined (process d). In order to obtain a sum of different virtual revolution, the processes (a) to (d) is repeated. The sum of virtual revolution related to the minimum total found out in the process (d) is used (process f). In the process (a), gradient drop search is used for the selection of the sum of virtual revolution.

D2 is concerned with the first regionally adaptive imaging technique, for enhancing the contrast of a digital image, employs an adaptive histogram equalization technique in which the histogram associated with a contextual region is low pass filtered, prior to developing the mapping function, of original pixel intensity to adjusted pixel intensity, from the histogram.

The subject-matter of claims 1, 15 is derivable from said document D1,D2. and He would thus arrive at the subject matter of the present claims 1, 15 without the exercise of inventive skill. Accordingly, present claims 1, 15 do not meet the requirement of Article 33(3) PCT.

3. Industrial applicability

Claims 1-35, relating to the method for processing digital image, their method and their use, are considered to be industrially applicable(Article 34(4) PCT).

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR00/00088

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

<u>Application No. Patent No.</u>	<u>Publication date (day/month/year)</u>	<u>Filing date (day/month/year)</u>	<u>Priority date (valid claim) (day/month/year)</u>
JP 8-320933	03. 12. 1996	27.03.1996	31. 03. 1995
JP 3-102479	26. 04. 1991	14. 09. 1990	14. 09. 1989

2. Non-written disclosures (Rule 70.9)

<u>Kind of non-written disclosure</u>	<u>Date of non-written disclosure (day/month/year)</u>	<u>Date of written disclosure referring to non-written disclosure (day/month/year)</u>
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