



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
30.05.2012 Bulletin 2012/22

(51) Int Cl.:
G01S 7/52 (2006.01) A61B 8/08 (2006.01)

(43) Date of publication A2:
07.10.2009 Bulletin 2009/41

(21) Application number: **09004659.0**

(22) Date of filing: **31.03.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA RS

(30) Priority: **02.04.2008 KR 20080030913**
02.04.2008 KR 20080030918
02.04.2008 KR 20080030921

(71) Applicant: **MEDISON CO., LTD.**
Kangwon-do 250-870 (KR)

(72) Inventors:

- **Kim, Jong Sik**
Seoul 135-851 (KR)
- **Jeong, Mok Kun**
Seoul 139-768 (KR)

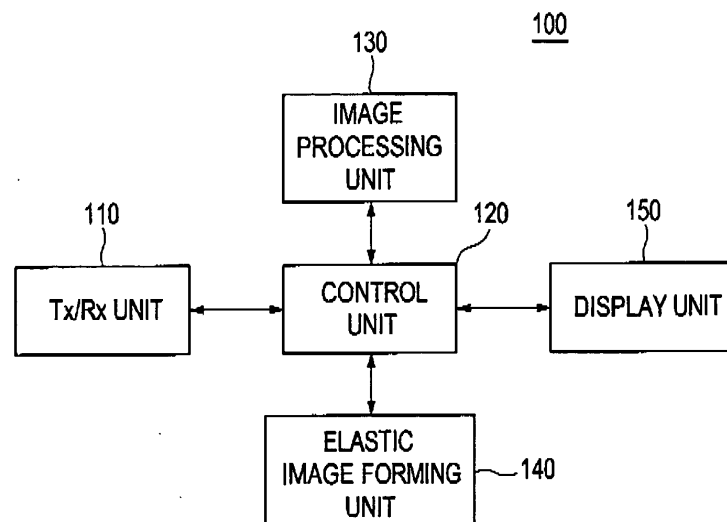
(74) Representative: **Lorenz, Markus**
Lorenz & Kollegen
Patentanwälte Partnerschaftsgesellschaft
Alte Ulmer Strasse 2
89522 Heidenheim (DE)

(54) **Formation of an elastic image in an ultrasound system**

(57) Embodiments for forming elastic images in an ultrasound system are disclosed. In one embodiment, a Tx/Rx unit repeatedly transmits/receives an ultrasound beam along scan lines in a target object to output receive signals. An image processing unit forms a plurality of consecutive ultrasound images based on the receive signals and set a center of the target object on each of the

ultrasound images. The image processing unit further sets radial scan lines in radial directions with respect to the center on each of the ultrasound image and reconstructs the ultrasound images such that the radial scan lines are in parallel with each other to form reconstruction images. An elastic image forming unit forms an elastic image based on the reconstruction images.

FIG. 1





EUROPEAN SEARCH REPORT

Application Number
EP 09 00 4659

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 615 680 A (SANO AKIHIRO [JP]) 1 April 1997 (1997-04-01) * abstract; figures 1, 30 * * column 5, line 21 - column 6, line 2 * * column 18, line 36 - column 19, line 49 *	1,12-15	INV. G01S7/52 A61B8/08
A	WO 99/17660 A1 (GE VINGMED ULTRASOUND AS [NO]; TORP HANS [NO]; HEIMDAL ANDREAS [NO]; O) 15 April 1999 (1999-04-15) * abstract; figures 1, 4 * * page 3, line 5 - page 4, line 3 * * page 8, line 1 - page 9, line 4 * * page 14, line 14 - page 14, line 30 *	1-15	
A	US 2002/072671 A1 (CHENAL CEDRIC [US] ET AL) 13 June 2002 (2002-06-13) * abstract; figures 1, 2, 11, 14b, 16 * * paragraphs [0023], [0025] - [0039] * * paragraph [0044] - paragraph [0047] * * paragraphs [0051] - [0052], [0058] *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			A61B G01S
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 24 April 2012	Examiner Knoll, Bernhard
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 00 4659

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

24-04-2012

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5615680	A	01-04-1997	NONE	

WO 9917660	A1	15-04-1999	AU 9453898 A	27-04-1999
			DE 69839016 T2	24-12-2008
			EP 1021129 A1	26-07-2000
			JP 3539924 B2	07-07-2004
			JP 2001518342 A	16-10-2001
			WO 9917660 A1	15-04-1999

US 2002072671	A1	13-06-2002	NONE	

专利名称(译)	在超声系统中形成弹性图像		
公开(公告)号	EP2107389A3	公开(公告)日	2012-05-30
申请号	EP2009004659	申请日	2009-03-31
申请(专利权)人(译)	MEDISON CO. , LTD.		
当前申请(专利权)人(译)	三星MEDISON CO. , LTD.		
[标]发明人	KIM JONG SIK JEONG MOK KUN		
发明人	KIM, JONG SIK JEONG, MOK KUN		
IPC分类号	G01S7/52 A61B8/08		
CPC分类号	G01S7/52046 A61B5/02007 A61B8/0833 A61B8/0858 A61B8/485 A61B8/543 G01S7/52034 G01S7/52042 G01S7/52085		
代理机构(译)	LORENZ , MARKUS		
优先权	1020080030913 2008-04-02 KR 1020080030921 2008-04-02 KR 1020080030918 2008-04-02 KR		
其他公开文献	EP2107389A2 EP2107389B1		
外部链接	Espacenet		

摘要(译)

公开了用于在超声系统中形成弹性图像的实施例。在一个实施例中，Tx/Rx单元沿着目标对象中的扫描线重复地发送/接收超声波束，以输出接收信号。图像处理单元基于接收信号形成多个连续的超声图像，并且在每个超声图像上设置目标对象的中心。图像处理单元还在每个超声图像上相对于中心在径向方向上设置径向扫描线，并重建超声图像，使得径向扫描线彼此平行以形成重建图像。弹性图像形成单元基于重建图像形成弹性图像。

