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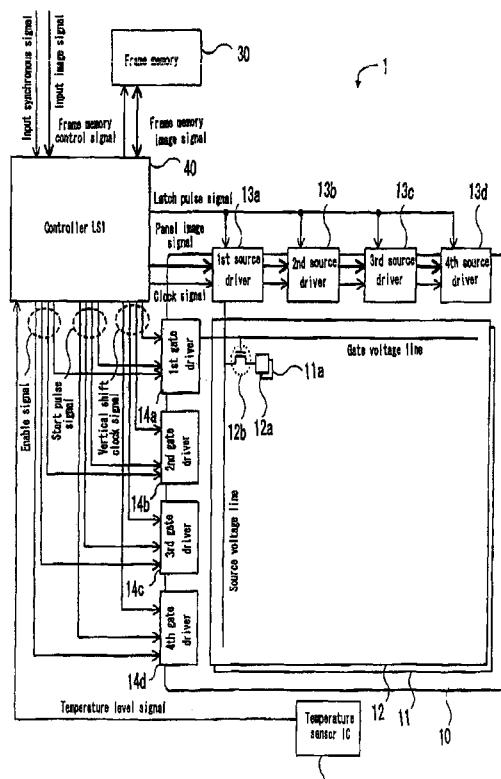
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(54) **Image display apparatus, electronic apparatus, liquid crystal TV, liquid crystal driving apparatus, image display method, display control program and computer-readable recording medium**

(57) An image display apparatus is provided for performing image display by dividing one frame period into a plurality of sub-frame periods, determining a gradation level of each of the sub-frame periods in accordance with a gradation level of an input image signal and supplying the determined gradation level to an image display section. The image display apparatus comprises a display control section, wherein the display control section supplies a relatively largest gradation level in a relatively central sub-frame period which is at a time-wise center or closest to the time-wise center of one frame period, and supplies a sequentially lowered gradation level in a sub-frame period which is sequentially farther from the relatively central sub-frame period.

FIG.1





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## EUROPEAN SEARCH REPORT

Application Number  
EP 04 25 7120

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 6 208 467 B1 (NAKA KAZUTAKA [JP] ET AL) 27 March 2001 (2001-03-27) * abstract * * column 1, line 1 - column 16, line 32 * * claims 1-29; figures 1-22 * -----	1-340	INV. G09G3/36
X	US 2002/191008 A1 (NAKA KAZUTAKA [JP] ET AL) 19 December 2002 (2002-12-19) * abstract * * paragraphs [0001] - [0125]; figures 1-22 * * claims 1-16 * -----	1-340	
X	US 6 088 012 A (SHIGETA TETSUYA [JP] ET AL) 11 July 2000 (2000-07-11) * abstract * * column 1, line 1 - column 9, line 22; claims 1-4; figures 1-14 * -----	1-340	
			TECHNICAL FIELDS SEARCHED (IPC)
			G09G
<p>The present search report has been drawn up for all claims</p> <p>2</p>			
Place of search	Date of completion of the search	Examiner	
Munich	18 January 2007	Wolff, Lilian	
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			

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

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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.

18-01-2007

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 6208467	B1	27-03-2001	NONE			
US 2002191008	A1	19-12-2002	NONE			
US 6088012	A	11-07-2000	JP JP	3529241 B2 10301531 A	24-05-2004 13-11-1998	

专利名称(译)	图像显示装置，电子设备，液晶电视，液晶驱动装置，图像显示方法，显示控制程序和计算机可读记录介质		
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优先权	2004332509 2004-11-16 JP 2003387269 2003-11-17 JP		
其他公开文献	<a href="#">EP1536407B1</a> <a href="#">EP1536407A2</a>		
外部链接	<a href="#">Espacenet</a>		

### 摘要(译)

提供一种图像显示装置，用于通过将一个帧周期划分为多个子帧周期来执行图像显示，根据输入图像信号的灰度级确定每个子帧周期的灰度级并提供图像显示装置。确定图像显示部分的灰度等级。该图像显示装置包括显示控制部分，其中显示控制部分在相对中央的子帧周期中提供相对最大的灰度级，该相对中央的子帧周期处于时间中心或最接近一个帧周期的时间中心，并且在子帧周期中提供顺序降低的灰度级，该子帧周期顺序地离相对中央的子帧周期更远。

