(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 492 078 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
17.05.2006 Bulletin 2006/20

(43) Date of publication A2:
29.12.2004 Bulletin 2004/53

(21) Application number: **04014721.7**

(22) Date of filing: **23.06.2004**

(51) Int Cl.:
G09G 3/36 *(2006.01)*

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL HR LT LV MK

(30) Priority: **23.06.2003 KR 2003040684**

(71) Applicant: **SAMSUNG ELECTRONICS CO., LTD.**
Suwon-si,
Gyeonggi-do 442-742 (KR)

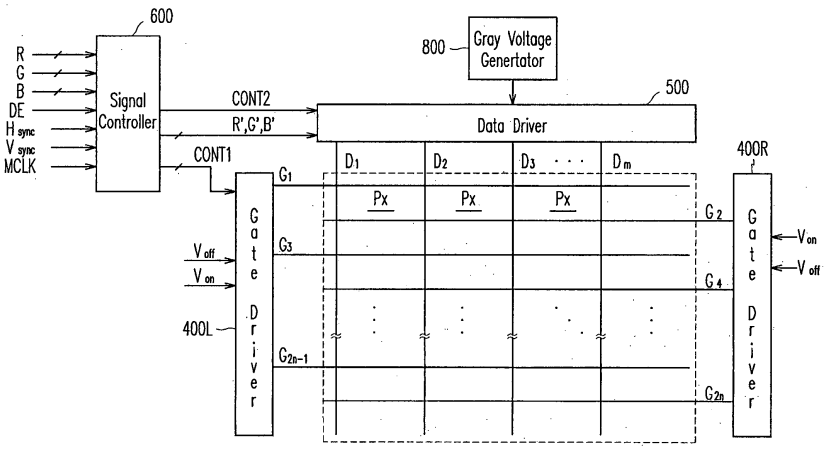
(72) Inventor: **Moon, Seung-Hwan**
Suji-eup
Yongin-si
Gyeonggi-do (KR)

(74) Representative: **Modiano, Micaela Nadia**
Modiano, Josif, Pisanty & Staub Ltd.,
Baaderstrasse 3
80469 München (DE)

(54) Display driving device with partitioned gate driving unit and liquid crystal display apparatus and method using the same

(57) A liquid crystal display apparatus includes a liquid crystal panel assembly having pixels arranged in a matrix form, which have a first group of pixels and a second group of pixels, gate lines having a first group of gate lines and a second group of gate lines that are connected with the first group of pixels and the second group of pixels, respectively, and data lines each of which is connected with one of the first group of pixels and one of the second group of pixels in every row of the matrix form. The liquid crystal display apparatus also includes a signal controller that receives input image signals and generates two groups of image data, a data driver that receives the two groups of image data and provides data voltages corresponding to the image data to the data lines, and a gate driving unit including a first gate driver that provides first gate-on signals to the first group of gate lines and a second gate driver that provides second gate-on signals to the second group of gate lines.

FIG.1



EP 1 492 078 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 01 4721

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 Y	US 5 151 689 A (KABUTO ET AL) 29 September 1992 (1992-09-29) * column 1; figures 5,6,9 * * column 7, line 15 - column 8, line 56 * * column 11, line 56 - line 61 *	1,2,5-7, 10-12 3,4,8,9, 13-20	G09G3/36
X Y	EP 1 058 232 A (KWON, OH-KYONG) 6 December 2000 (2000-12-06) * paragraphs [0020] - [0027], [0056] - [0058]; figures 7A,7B,15A *	1,2,5, 10-12 3,4,6-9, 13-20	
X Y	FR 2 719 936 A (SAGEM) 17 November 1995 (1995-11-17) * the whole document *	1,2,5, 10-12 3,4,6-9, 13-20	
Y	US 2002/149318 A1 (JEON JIN ET AL) 17 October 2002 (2002-10-17) * paragraphs [0113] - [0118], [0128], [0129]; figures 6,8 *	3,6-9, 13-20	TECHNICAL FIELDS SEARCHED (IPC)
Y	EP 1 017 060 A (SHARP KABUSHIKI KAISHA) 5 July 2000 (2000-07-05) * paragraphs [0048] - [0052], [0060] - [0062]; figures 4,5,11 *	3,4,6-9, 13-20	G09G
A	US 2002/080107 A1 (FUJIMOTO KAZUSHI ET AL) 27 June 2002 (2002-06-27) * paragraphs [0196] - [0205]; figure 16 *	1,13,18	
A	EP 1 170 720 A (SONY CORPORATION) 9 January 2002 (2002-01-09) * paragraphs [0026], [0033], [0034]; figure 1 *	1,13,18	

-/--

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 February 2006	Auracher, S

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

EPO FORM 1503 03.82 (P04C01)

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 01 4721

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2001/017607 A1 (KWON KEUK-SANG ET AL) 30 August 2001 (2001-08-30) * paragraph [0006] - paragraph [0008]; figures 2A-2D *	11	

TECHNICAL FIELDS SEARCHED (IPC)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 February 2006	Auracher, S

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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 04 01 4721

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.

22-02-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5151689 A	29-09-1992	JP 2042420 A	13-02-1990
		JP 2581796 B2	12-02-1997
		KR 9302912 B1	15-04-1993
EP 1058232 A	06-12-2000	CN 1278073 A	27-12-2000
		CN 1276590 A	13-12-2000
		CN 1281155 A	24-01-2001
		EP 1061498 A2	20-12-2000
		EP 1058233 A2	06-12-2000
		JP 2001027751 A	30-01-2001
		JP 2001042842 A	16-02-2001
		JP 2001027893 A	30-01-2001
		KR 2001001483 A	05-01-2001
		TW 559765 B	01-11-2003
		US 6486930 B1	26-11-2002
		US 6525710 B1	25-02-2003
FR 2719936 A	17-11-1995	NONE	
US 2002149318 A1	17-10-2002	CN 1526141 A	01-09-2004
		EP 1360695 A2	12-11-2003
		JP 2004524639 T	12-08-2004
		WO 02065062 A2	22-08-2002
EP 1017060 A	05-07-2000	GB 2345207 A	28-06-2000
		JP 3552972 B2	11-08-2004
		JP 2000236234 A	29-08-2000
		KR 2000052545 A	25-08-2000
		US 6377099 B1	23-04-2002
US 2002080107 A1	27-06-2002	JP 2002202760 A	19-07-2002
		TW 578135 B	01-03-2004
EP 1170720 A	09-01-2002	CN 1333529 A	30-01-2002
		JP 2002023683 A	23-01-2002
		US 2002044127 A1	18-04-2002
US 2001017607 A1	30-08-2001	KR 2001066254 A	11-07-2001

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	具有分区栅极驱动单元的显示驱动装置和使用该装置的液晶显示装置和方法		
公开(公告)号	EP1492078A3	公开(公告)日	2006-05-17
申请号	EP2004014721	申请日	2004-06-23
[标]申请(专利权)人(译)	三星电子株式会社		
申请(专利权)人(译)	SAMSUNG ELECTRONICS CO.，LTD.		
当前申请(专利权)人(译)	SAMSUNG ELECTRONICS CO.，LTD.		
[标]发明人	MOON SEUNG HWAN		
发明人	MOON, SEUNG-HWAN		
IPC分类号	G09G3/36 G02F1/133 G02F1/1362 G09G3/20		
CPC分类号	G02F1/136286 G09G3/3614 G09G3/3648 G09G3/3677 G09G3/3688 G09G2300/0408 G09G2300/0426 G09G2300/08 G09G2310/0205 G09G2310/0251 G09G2310/0281 G09G2310/0297 G09G3/3696		
优先权	1020030040684 2003-06-23 KR		
其他公开文献	EP1492078A2		
外部链接	Espacenet		

摘要(译)

一种液晶显示装置，包括具有以矩阵形式排列的像素的液晶面板组件，所述像素具有第一组像素和第二组像素，栅极线具有第一组栅极线和第二组栅极线。第一组像素和第二组像素分别与第一组像素和第二组像素连接，并且每条数据线与矩阵形式的每行中的第一组像素之一和第二组像素之一连接。液晶显示装置还包括：信号控制器，接收输入图像信号并产生两组图像数据;数据驱动器，接收两组图像数据，并将与图像数据对应的数据电压提供给数据线;栅极驱动单元包括：第一栅极驱动器，向第一组栅极线提供第一栅极导通信号;以及第二栅极驱动器，向第二组栅极线提供第二栅极导通信号。

FIG.1