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(54) **LIQUID CRYSTAL DISPLAY DRIVING CIRCUIT AND LIQUID CRYSTAL DISPLAY DEVICE**

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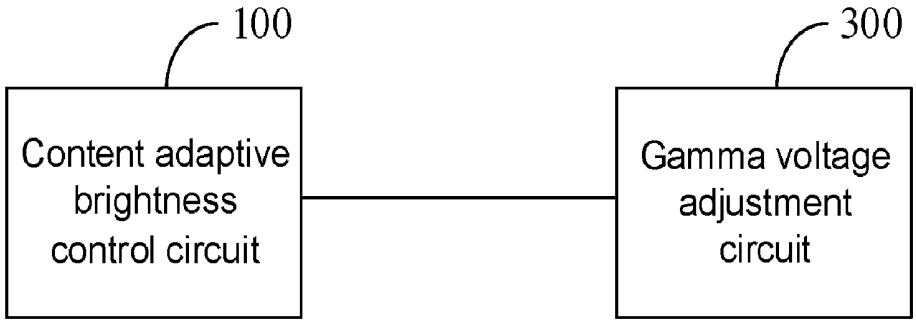
(57) **ABSTRACT**

The disclosure provides a liquid crystal display driving circuit and a liquid crystal display device. The liquid crystal display driving circuit includes a content adaptive brightness control circuit and a Gamma voltage adjustment circuit, when the content adaptive brightness control circuit is turned on, the brightness of the backlight module is switched from first backlight brightness to second backlight brightness under the control of the content adaptive brightness control circuit, when the brightness of the backlight module is the first backlight brightness, the Gamma voltage adjustment circuit outputs a first Gamma voltage for adjusting grayscale brightness of the liquid crystal display to be first grayscale brightness, when the brightness of the backlight module is the second backlight brightness, the Gamma voltage adjustment circuit outputs a second Gamma voltage for adjusting the grayscale brightness of the liquid crystal display to be second grayscale brightness.



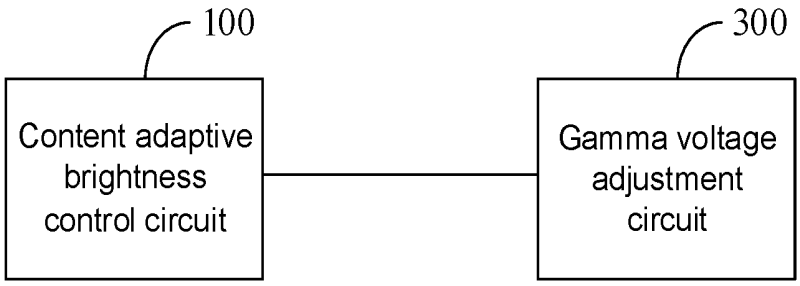


FIG. 1

300

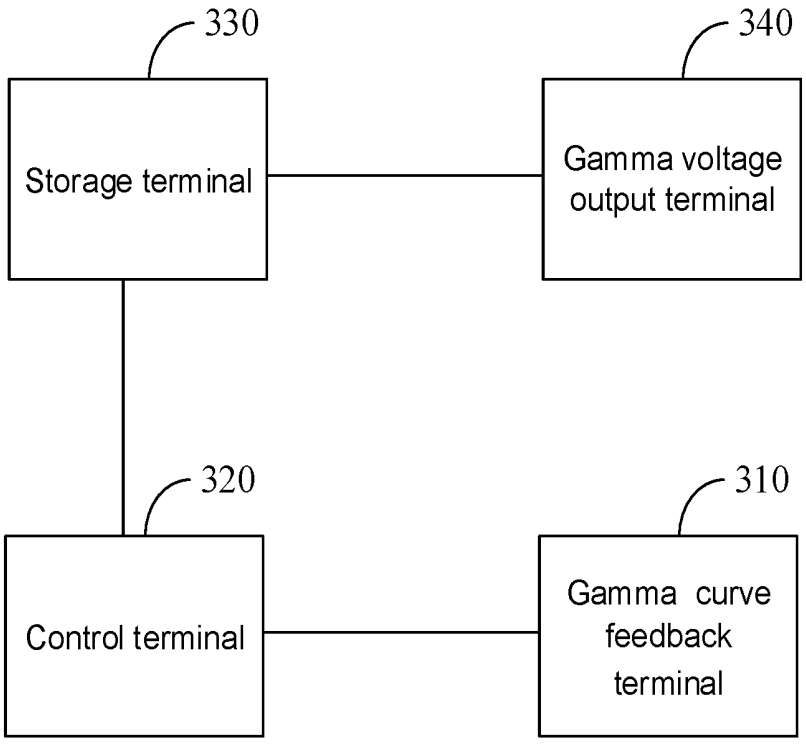


FIG. 2

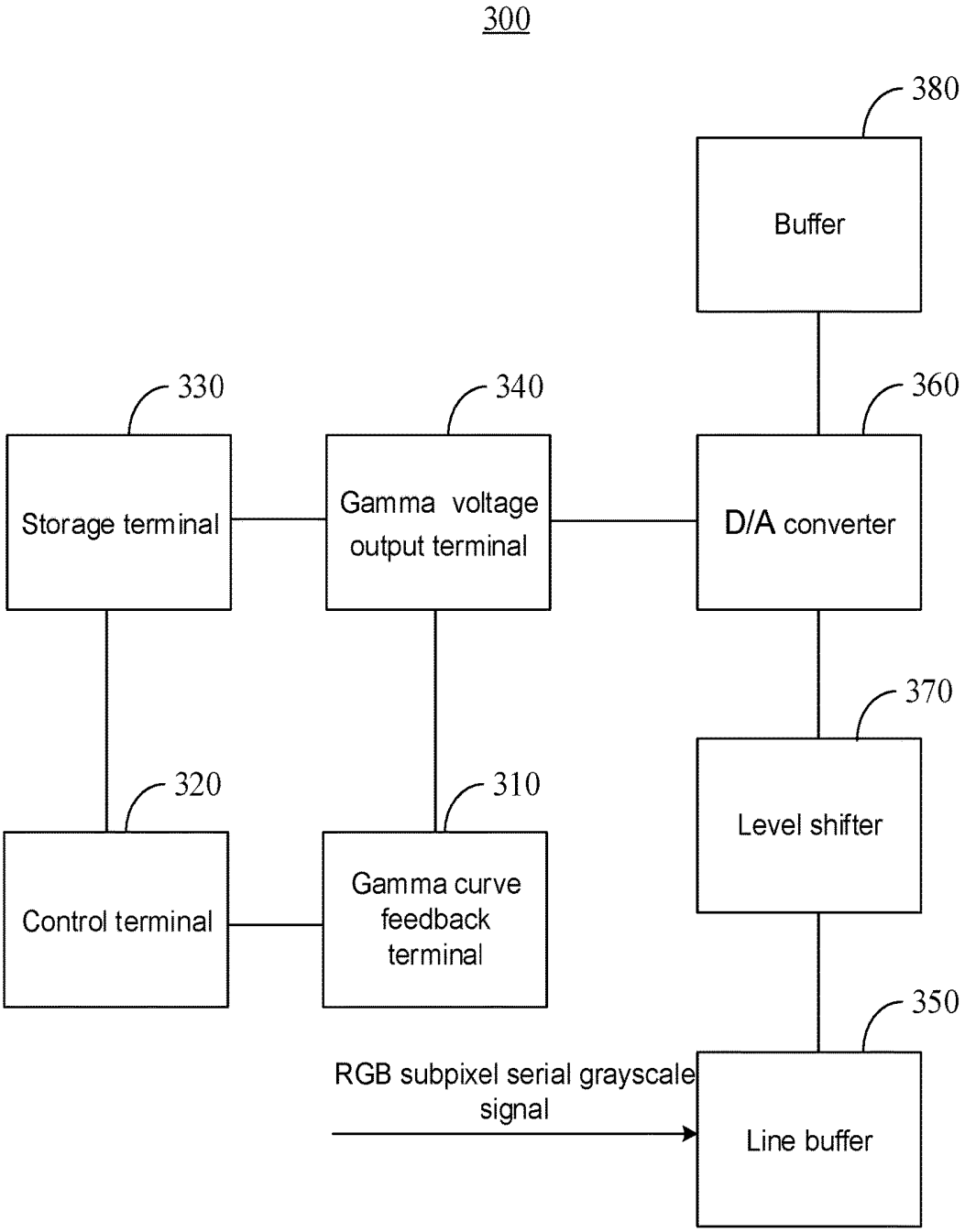

300
380
Buffer
330
340
360
Storage terminal
Gamma voltage output terminal
D/A converter
370
320
310
Level shifter
Control terminal
Gamma curve feedback terminal
350
RGB subpixel serial grayscale signal
Line buffer

FIG. 3

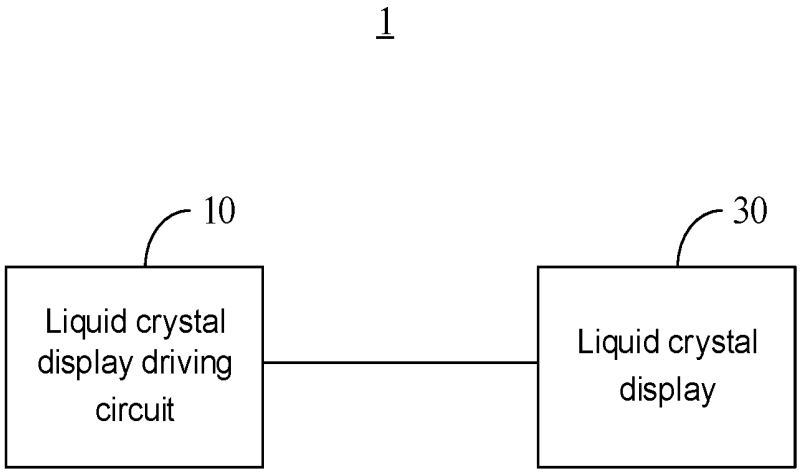

1
10
Liquid crystal display driving circuit
30
Liquid crystal display

FIG. 4

LIQUID CRYSTAL DISPLAY DRIVING CIRCUIT AND LIQUID CRYSTAL DISPLAY DEVICE

CROSS REFERENCE

[0001] This disclosure claims priority to Chinese patent application No. 201610431967.4, entitled "LIQUID CRYSTAL DISPLAY DRIVING CIRCUIT AND LIQUID CRYSTAL DISPLAY DEVICE" filed on Jun. 17, 2016, which is incorporated by reference in its entirety.

FIELD OF THE DISCLOSURE

[0002] The disclosure relates to a display technical field, and more particularly to a liquid crystal display driving circuit and a liquid crystal display device.

BACKGROUND OF THE DISCLOSURE

[0003] The trend of a liquid crystal display device such as a mobile phone, a personal digital assistant (PDA), a laptop and a tablet is going thinner and lighter, portable and multifunctional with the development of electronics industry. Energy consumption of a display of the liquid crystal display device is around 60%-70% of the entire consumption of the liquid crystal display device. In the display, energy consumption of a backlight module is 70%-80% of that of the display. However, a size and capacity of a battery in the liquid crystal display device is restricted by the volume of the liquid crystal display device. Therefore, energy provided to the backlight module is generally sacrificed for extending endurance of the liquid crystal display device when a battery is finite in size and capacity. However, brightness of the liquid crystal display will be reduced due to the sacrifice of energy consumption of the backlight module, so that poor effects will be provided in display.

SUMMARY OF THE DISCLOSURE

[0004] The disclosure provides a liquid crystal display driving circuit, the liquid crystal display driving circuit includes a content adaptive brightness control circuit and a Gamma voltage adjustment circuit, the content adaptive brightness control circuit is applied to adjust brightness of a backlight module in a liquid crystal display, when the content adaptive brightness control circuit is turned on, the brightness of the backlight module is switched from first backlight brightness to second backlight brightness under the control of the content adaptive brightness control circuit, where the first backlight brightness is brighter than the second backlight brightness, when the brightness of the backlight module is the first backlight brightness, the Gamma voltage adjustment circuit outputs a first Gamma voltage for adjusting grayscale brightness of the liquid crystal display to be first grayscale brightness, when the brightness of the backlight module is the second backlight brightness, the Gamma voltage adjustment circuit outputs a second Gamma voltage for adjusting the grayscale brightness of the liquid crystal display to be second grayscale brightness, where the second grayscale brightness is brighter than the first grayscale brightness, and brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the second grayscale brightness and the brightness of the backlight module is the second backlight brightness is equal to brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the first grayscale brightness and the brightness of the backlight module is the first backlight brightness.

[0005] The Gamma voltage adjustment circuit includes a Gamma curve feedback terminal, a control terminal, a storage terminal and a Gamma voltage output terminal, the Gamma curve feedback terminal is applied to detect the grayscale brightness of the liquid crystal display to be the second grayscale brightness when the brightness of the backlight module is switched from the first backlight brightness to the second backlight brightness, and transport the second grayscale brightness to the control terminal, the control terminal obtains the second Gamma voltage corresponding to the second grayscale brightness from the storage terminal according to the second grayscale brightness, and exports the second Gamma voltage by the Gamma voltage output terminal.

[0006] The Gamma voltage adjustment circuit further includes a line buffer and a D/A converter, the line buffer is applied to receive a RGB subpixel serial grayscale signal, and transform the RGB subpixel serial grayscale signal to a RGB subpixel parallel grayscale signal, where the RGB subpixel serial grayscale signal is a serial signal, the RGB subpixel parallel grayscale signal is a parallel signal, the D/A converter is applied to convert an analog Gamma voltage generated by the Gamma voltage output terminal to a digital Gamma voltage according to the RGB subpixel parallel grayscale signal, and export the digital Gamma signal to a corresponding pixel electrode in the liquid crystal display.

[0007] The Gamma voltage adjustment circuit further includes a level shifter, the level shifter is applied to receive the RGB subpixel parallel grayscale signal, and export the RGB subpixel parallel grayscale signal after its voltage being boosted to the D/A converter.

[0008] When the content adaptive brightness control circuit is turned off, the brightness of the backlight module in the liquid crystal display is constant, when the content adaptive brightness control circuit is turned off, the Gamma voltage adjustment circuit will not be operational.

[0009] The disclosure further provides a liquid crystal display device, the liquid crystal display device includes a liquid crystal display and a liquid crystal display driving circuit, the liquid crystal display driving circuit includes a content adaptive brightness control circuit and a Gamma voltage adjustment circuit, the content adaptive brightness control circuit is applied to adjust brightness of a backlight module in a liquid crystal display, when the content adaptive brightness control circuit is turned on, the brightness of the backlight module is switched from first backlight brightness to second backlight brightness under the control of the content adaptive brightness control circuit, where the first backlight brightness is brighter than the second backlight brightness, when the brightness of the backlight module is the first backlight brightness, the Gamma voltage adjustment circuit outputs a first Gamma voltage for adjusting grayscale brightness of the liquid crystal display to be first grayscale brightness, when the brightness of the backlight module is the second backlight brightness, the Gamma voltage adjustment circuit outputs a second Gamma voltage for adjusting the grayscale brightness of the liquid crystal display to be second grayscale brightness, where the second grayscale brightness is brighter than the first grayscale brightness, and brightness of an output image from the liquid crystal display

when the grayscale brightness of the liquid crystal display is the second grayscale brightness and the brightness of the backlight module is the second backlight brightness is equal to brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the first grayscale brightness and the brightness of the backlight module is the first backlight brightness.

[0010] The Gamma voltage adjustment circuit includes a Gamma curve feedback terminal, a control terminal, a storage terminal and a Gamma voltage output terminal, the Gamma curve feedback terminal is applied to detect the grayscale brightness of the liquid crystal display to be the second grayscale brightness when the brightness of the backlight module is switched from the first backlight brightness to the second backlight brightness, and transport the second grayscale brightness to the control terminal, the control terminal obtains the second Gamma voltage corresponding to the second grayscale brightness from the storage terminal according to the second grayscale brightness, and exports the second Gamma voltage by the Gamma voltage output terminal.

[0011] The Gamma voltage adjustment circuit further includes a line buffer and a D/A converter, the line buffer is applied to receive a RGB subpixel serial grayscale signal, and transform the RGB subpixel serial grayscale signal to a RGB subpixel parallel grayscale signal, where the RGB subpixel serial grayscale signal is a serial signal, the RGB subpixel parallel grayscale signal is a parallel signal, the D/A converter is applied to convert an analog Gamma voltage generated by the Gamma voltage output terminal to a digital Gamma voltage according to the RGB subpixel parallel grayscale signal, and export the digital Gamma signal to a corresponding pixel electrode in the liquid crystal display.

[0012] The Gamma voltage adjustment circuit further includes a level shifter, the level shifter is applied to receive the RGB subpixel parallel grayscale signal, and export the RGB subpixel parallel grayscale signal after its voltage being boosted to the D/A converter.

[0013] When the content adaptive brightness control circuit is turned off, the brightness of the backlight module in the liquid crystal display is constant, when the content adaptive brightness control circuit is turned off, the Gamma voltage adjustment circuit will not be operational.

[0014] Compared with a conventional technique, when the content adaptive brightness control circuit in the liquid crystal display driving circuit of the disclosure is turned on, the brightness of the backlight module is reduced from first backlight brightness to second backlight brightness. The Gamma voltage adjustment circuit is adjusting the exported Gamma voltage, when the brightness of the backlight module is the first backlight brightness, the Gamma voltage adjustment circuit outputs a first Gamma voltage for adjusting grayscale brightness of the liquid crystal display to be first grayscale brightness. When the brightness of the backlight module is the second backlight brightness, the Gamma voltage adjustment circuit outputs a second Gamma voltage for adjusting the brightness of the liquid crystal display to be second grayscale brightness. The second grayscale brightness is brighter than the first grayscale brightness, and brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the second grayscale brightness and the brightness of the backlight module is the second backlight brightness is equal to brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the first grayscale brightness and the brightness of the backlight module is the first backlight brightness. The brightness of the exported image from the liquid crystal display device is constant when energy consumption of the backlight module is reduced, display performance of the image is excellent.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] In order to more clearly illustrate the disclosure, following figures described in embodiments will be briefly introduced, it is obvious that the drawings are merely some embodiments of the disclosure, a person skilled in the art can obtain other figures according to these figures without creativity.

[0016] FIG. **1** is a circuit framework diagram of a liquid crystal display driving circuit of a preferred embodiment of the disclosure.

[0017] FIG. **2** is a circuit framework diagram of a Gamma voltage adjustment circuit of a preferred embodiment of the disclosure.

[0018] FIG. **3** is a circuit framework diagram of a Gamma voltage adjustment circuit of another preferred embodiment of the disclosure.

[0019] FIG. **4** is a circuit framework diagram of a liquid crystal display device of a preferred embodiment of the disclosure.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0020] Embodiments of the disclosure are described in detail with reference to the accompanying drawings as follows, obviously, the described embodiments are part of embodiments of the disclosure rather than all of them. Based on the embodiments of the disclosure, all other embodiments obtained by a person skilled in the art without creativity should be considered within the scope of protection of the disclosure.

[0021] Referring to FIG. **1**, FIG. **2** and FIG. **3**, FIG. **1** is a circuit framework diagram of a liquid crystal display driving circuit of a preferred embodiment of the disclosure; FIG. **2** is a circuit framework diagram of a Gamma voltage adjustment circuit of a preferred embodiment of the disclosure; FIG. **3** is a circuit framework diagram of a Gamma voltage adjustment circuit of another preferred embodiment of the disclosure. The liquid crystal display driving circuit **10** includes a content adaptive brightness control (CABC) circuit **100** and a Gamma voltage adjustment circuit **300**. The content adaptive brightness control circuit **100** is applied to adjust brightness of a backlight module in a liquid crystal display, when the content adaptive brightness control circuit **100** is turned on, the brightness of the backlight module is switched from first backlight brightness to second backlight brightness under the control of the content adaptive brightness control circuit **100**, where the first backlight brightness is brighter than the second backlight brightness. Equally, when the content adaptive brightness control circuit **100** is turned on, the content adaptive brightness control circuit **100** reduces the brightness of the backlight module, equally, reducing energy consumption of the backlight module. When the brightness of the backlight module is the first backlight brightness, the Gamma voltage adjustment circuit

300 outputs a first Gamma voltage for adjusting grayscale brightness of the liquid crystal display to be first grayscale brightness. When the brightness of the backlight module is the second backlight brightness, the Gamma voltage adjustment circuit 300 outputs a second Gamma voltage for adjusting the grayscale brightness of the liquid crystal display to be second grayscale brightness. The second grayscale brightness is brighter than the first grayscale brightness, and brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the second grayscale brightness and the brightness of the backlight module is the second backlight brightness is equal to brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the first grayscale brightness and the brightness of the backlight module is the first backlight brightness.

[0022] In the embodiment, the Gamma voltage adjustment circuit 300 includes a Gamma curve feedback terminal 310, a control terminal 320, a storage terminal 330 and a Gamma voltage output terminal 340. The Gamma curve feedback terminal 310 is applied to detect the grayscale brightness of the liquid crystal display when the brightness of the backlight module varies, when the brightness of the backlight module is switched from the first backlight brightness to the second backlight brightness, the Gamma curve feedback terminal 310 detects the grayscale brightness of the liquid crystal display to be the second grayscale brightness and transports the second grayscale brightness to the control terminal 320. The control terminal 320 obtains the second Gamma voltage corresponding to the second grayscale brightness from the storage terminal 330 according to the second grayscale brightness, and exports the second Gamma voltage by the Gamma voltage output terminal 340.

[0023] Each grayscale brightness and Gamma voltages corresponding to each grayscale are pre-stored in the storage terminal 330, each grayscale and Gamma voltages corresponding to each grayscale can be stored in the storage terminal in a form of table or others. To various Gamma voltages stored in the storage terminal 330, grayscale brightness corresponding to each of the Gamma voltages and brightness of an image generated by backlight brightness of a backlight module corresponding to the grayscale are constant.

[0024] In the embodiment, the Gamma voltage adjustment circuit 300 further includes a line buffer 350 and a D/A converter 360. The line buffer 350 is applied to receive a RGB subpixel serial grayscale signal, and transform the RGB subpixel serial grayscale signal to a RGB subpixel parallel grayscale signal, where the RGB subpixel serial grayscale signal is a serial signal, the RGB subpixel parallel grayscale signal is a parallel signal. The D/A converter 360 is applied to convert an analog Gamma voltage generated by the Gamma voltage output terminal to a digital Gamma voltage according to the RGB subpixel parallel grayscale signal, and export the digital Gamma signal to a corresponding pixel electrode in the liquid crystal display.

[0025] In the embodiment, the Gamma voltage adjustment circuit 300 further includes a level shifter 370. The level shifter 370 is applied to receive the RGB subpixel parallel grayscale signal, and export the RGB subpixel parallel grayscale signal after its voltage being boosted to the D/A converter 360. The RGB subpixel parallel grayscale signal after its voltage being boosted assists the D/A converter 360 to select one of the analog Gamma voltage signals generated in the Gamma voltage output terminal 340 accurately according to the RGB subpixel parallel grayscale signal.

[0026] In the embodiment, the Gamma voltage adjustment circuit 300 further includes a buffer 380. The buffer 380 is applied to export the digital Gamma signal after being buffered for predetermined time to a corresponding pixel electrode in the liquid crystal display.

[0027] In the embodiment, when the content adaptive brightness control circuit 100 is turned off, the brightness of the backlight module in the liquid crystal display is constant, therefore, when the content adaptive brightness control circuit is turned off, the Gamma voltage adjustment circuit 300 is not operational, equally, the Gamma voltage exported from the Gamma voltage adjustment circuit 300 is constant.

[0028] Compared with a conventional technique, when the content adaptive brightness control circuit 100 in the liquid crystal display driving circuit 10 of the disclosure is turned on, the brightness of the backlight module is reduced from first backlight brightness to second backlight brightness. The Gamma voltage adjustment circuit 300 is adjusting the exported Gamma voltage, when the brightness of the backlight module is the first backlight brightness, the Gamma voltage adjustment circuit 300 outputs a first Gamma voltage for adjusting grayscale brightness of the liquid crystal display to be first grayscale brightness. When the brightness of the backlight module is the second backlight brightness, the Gamma voltage adjustment circuit 300 outputs a second Gamma voltage for adjusting the grayscale brightness of the liquid crystal display to be second grayscale brightness. The second grayscale brightness is brighter than the first grayscale brightness, and brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the second grayscale brightness and the brightness of the backlight module is the second backlight brightness is equal to brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the first grayscale brightness and the brightness of the backlight module is the first backlight brightness. The brightness of the exported image from the liquid crystal display device is constant when energy consumption of the backlight module is reduced, display performance of the image is excellent.

[0029] The disclosure further provides a liquid crystal display device, referring to FIG. 4 as well, FIG. 4 is a circuit framework diagram of a liquid crystal display device of a preferred embodiment of the disclosure. The liquid crystal display device 1 includes a liquid crystal display 30 and a liquid crystal display driving circuit 10. The liquid crystal display driving circuit 10 can be referred to the previous description without repeat. In the embodiment, the liquid crystal display device 1 includes a portable device such as a smart phone, a mobile internet device (MID), an E-book, a play station portable (PSP) or a personal digital assistant (PDA).

[0030] Above are embodiments of the disclosure, which do not limit the scope of the disclosure, any modifications, equivalent replacements or improvements within the spirit and principles of the embodiments described above should be covered by the protected scope of the disclosure.

What is claimed is:

1. A liquid crystal display driving circuit, wherein the liquid crystal display driving circuit comprises a content adaptive brightness control circuit and a Gamma voltage

adjustment circuit, the content adaptive brightness control circuit is applied to adjust brightness of a backlight module in a liquid crystal display, when the content adaptive brightness control circuit is turned on, the brightness of the backlight module is switched from first backlight brightness to second backlight brightness under the control of the content adaptive brightness control circuit, where the first backlight brightness is brighter than the second backlight brightness, when the brightness of the backlight module is the first backlight brightness, the Gamma voltage adjustment circuit outputs a first Gamma voltage for adjusting grayscale brightness of the liquid crystal display to be first grayscale brightness, when the brightness of the backlight module is the second backlight brightness, the Gamma voltage adjustment circuit outputs a second Gamma voltage for adjusting the grayscale brightness of the liquid crystal display to be second grayscale brightness, where the second grayscale brightness is brighter than the first grayscale brightness, and brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the second grayscale brightness and the brightness of the backlight module is the second backlight brightness is equal to brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the first grayscale brightness and the brightness of the backlight module is the first backlight brightness.

2. The liquid crystal display driving circuit according to claim **1**, wherein the Gamma voltage adjustment circuit comprises a Gamma curve feedback terminal, a control terminal, a storage terminal and a Gamma voltage output terminal, the Gamma curve feedback terminal is applied to detect the grayscale brightness of the liquid crystal display to be the second grayscale brightness when the brightness of the backlight module is switched from the first backlight brightness to the second backlight brightness, and transport the second grayscale brightness to the control terminal, the control terminal obtains the second Gamma voltage corresponding to the second grayscale brightness from the storage terminal according to the second grayscale brightness, and exports the second Gamma voltage by the Gamma voltage output terminal.

3. The liquid crystal display driving circuit according to claim **2**, wherein the Gamma voltage adjustment circuit further comprises a line buffer and a D/A converter, the line buffer is applied to receive a RGB subpixel serial grayscale signal, and transform the RGB subpixel serial grayscale signal to a RGB subpixel parallel grayscale signal, where the RGB subpixel serial grayscale signal is a serial signal, the RGB subpixel parallel grayscale signal is a parallel signal, the D/A converter is applied to convert an analog Gamma voltage generated by the Gamma voltage output terminal to a digital Gamma voltage according to the RGB subpixel parallel grayscale signal, and export the digital Gamma signal to a corresponding pixel electrode in the liquid crystal display.

4. The liquid crystal display driving circuit according to claim **3**, wherein the Gamma voltage adjustment circuit further comprises a level shifter, the level shifter is applied to receive the RGB subpixel parallel grayscale signal, and export the RGB subpixel parallel grayscale signal after its voltage being boosted to the D/A converter.

5. The liquid crystal display driving circuit according to claim **1**, wherein when the content adaptive brightness control circuit is turned off, the brightness of the backlight module in the liquid crystal display is constant, when the content adaptive brightness control circuit is turned off, the Gamma voltage adjustment circuit will not be operational.

6. A liquid crystal display device, wherein the liquid crystal display device comprises a liquid crystal display and a liquid crystal display driving circuit, the liquid crystal display driving circuit comprises a content adaptive brightness control circuit and a Gamma voltage adjustment circuit, the content adaptive brightness control circuit is applied to adjust brightness of a backlight module in a liquid crystal display, when the content adaptive brightness control circuit is turned on, the brightness of the backlight module is switched from first backlight brightness to second backlight brightness under the control of the content adaptive brightness control circuit, where the first backlight brightness is brighter than the second backlight brightness, when the brightness of the backlight module is the first backlight brightness, the Gamma voltage adjustment circuit outputs a first Gamma voltage for adjusting grayscale brightness of the liquid crystal display to be first grayscale brightness, when the brightness of the backlight module is the second backlight brightness, the Gamma voltage adjustment circuit outputs a second Gamma voltage for adjusting the grayscale brightness of the liquid crystal display to be second grayscale brightness, where the second grayscale brightness is brighter than the first grayscale brightness, and brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the second grayscale brightness and the brightness of the backlight module is the second backlight brightness is equal to brightness of an output image from the liquid crystal display when the grayscale brightness of the liquid crystal display is the first grayscale brightness and the brightness of the backlight module is the first backlight brightness.

7. The liquid crystal display device according to claim **6**, wherein the Gamma voltage adjustment circuit comprises a Gamma curve feedback terminal, a control terminal, a storage terminal and a Gamma voltage output terminal, the Gamma curve feedback terminal is applied to detect the grayscale brightness of the liquid crystal display to be the second grayscale brightness when the brightness of the backlight module is switched from the first backlight brightness to the second backlight brightness, and transport the second grayscale brightness to the control terminal, the control terminal obtains the second Gamma voltage corresponding to the second grayscale brightness from the storage terminal according to the second grayscale brightness, and exports the second Gamma voltage by the Gamma voltage output terminal.

8. The liquid crystal display device according to claim **7**, wherein the Gamma voltage adjustment circuit further comprises a line buffer and a D/A converter, the line buffer is applied to receive a RGB subpixel serial grayscale signal, and transform the RGB subpixel serial grayscale signal to a RGB subpixel parallel grayscale signal, where the RGB subpixel serial grayscale signal is a serial signal, the RGB subpixel parallel grayscale signal is a parallel signal, the D/A converter is applied to convert an analog Gamma voltage generated by the Gamma voltage output terminal to a digital Gamma voltage according to the RGB subpixel parallel grayscale signal, and export the digital Gamma signal to a corresponding pixel electrode in the liquid crystal display.

9. The liquid crystal display device according to claim **8**, wherein the Gamma voltage adjustment circuit further comprises a level shifter, the level shifter is applied to receive the RGB subpixel parallel grayscale signal, and export the RGB subpixel parallel grayscale signal after its voltage being boosted to the D/A converter.

10. The liquid crystal display device according to claim **6**, wherein when the content adaptive brightness control circuit is turned off, the brightness of the backlight module in the liquid crystal display is constant, when the content adaptive brightness control circuit is turned off, the Gamma voltage adjustment circuit will not be operational.

* * * * *

专利名称(译)	液晶显示器驱动电路和液晶显示器件		
公开(公告)号	US20180173060A1	公开(公告)日	2018-06-21
申请号	US15/118880	申请日	2016-06-29
[标]申请(专利权)人(译)	武汉华星光电技术有限公司		
申请(专利权)人(译)	中国武汉恒星光电科技有限公司.		
当前申请(专利权)人(译)	中国武汉恒星光电科技有限公司		
[标]发明人	GUO XINGLING YANG XIANG QIN JIEHUI		
发明人	GUO, XINGLING YANG, XIANG QIN, JIEHUI		
IPC分类号	G02F1/1335 G09G3/36		
CPC分类号	G02F1/133611 G09G3/3607 G09G2310/0264 G02F1/1336 G02F2203/30 G09G3/3406 G09G3/36 G09G3/3611 G09G2320/0276 G09G2320/0646 G09G2320/0673 G09G2330/021 G09G2360/145 G09G2360/16		
优先权	201610431967.4 2016-06-17 CN		
其他公开文献	US10120236		
外部链接	Espacenet USPTO		

摘要(译)

本发明提供了一种液晶显示驱动电路和液晶显示装置。液晶显示驱动电路包括内容自适应亮度控制电路和伽玛电压调节电路，当内容自适应亮度控制电路开启时，背光模块的亮度从第一背光亮度切换到第二背光亮度当所述背光模组的亮度为所述第一背光亮度时，所述伽玛电压调节电路输出用于调节所述液晶显示器的灰阶亮度的第一伽玛电压为第一灰阶亮度，当所述内容自适应亮度控制电路的亮度为所述背光模组为所述第二背光亮度，所述伽马电压调节电路输出第二伽马电压，用于将所述液晶显示器的灰阶亮度调节为第二灰阶亮度。