(71)   3   416

(72)   (   )331   110 802

(74)

    :

(54)

'0'

4

,   ,   ,   ,   , LCD

1 .

2 .

3

4

5

'

.

(dielectric anisotropy)

.   '

.

'   (flat panel dispaly, FPD)

(thin film transistor, TFT)   TFT-LCD

.

TFT-LCD

.   TFT-LCD

.

'

.

.

'

(G_n) (G_{n-1})

(G_n)

'

(G_n')

.

1

2   .

2   3

4   .   3   4

.

3   4   (MSB)
.

2
          5   ,   5   3   4
                    .

                    1   .

                                                                    .

                    '

                                                                                    '

                                                                                                '

                              '

                                        '

                    '

                    .

                                                            'O'

          '   .

                              1   4   ,   1
                                        ,   2
                    '   ,   3
                                                        '
                    ,   4   1   3   '   .

          f, a, b, c   ,

$f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y]) = G_n{}'(G_n[x \quad y-1:y] \times 2^y, G_{n-1}[x \quad y-1:y] \times 2^y),$

$a(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y]) = f(G_n[x \quad y-1:y] \quad 1, G_{n-1}[x \quad y-1:y])$

$- f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y]),$

$b(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y]) = f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y])$

$- f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y] \quad 1),$

$c(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y])$

$= f(G_n[x \quad y-1:y] \quad 1, G_{n-1}[x \quad y-1:y] \quad 1) \quad f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y])$

$- f(G_n[x \quad y-1:y] \quad 1, G_{n-1}[x \quad y-1:y]) - f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y] \quad 1)$

(x   , y
          .)

.

1 ,

2 (G $_n$')

$G_n'=f\ a\times G_n\ [y\text{-}1{:}0]/2\ ^y\ —b\times G_{n\text{-}1}\ [y\text{-}1{:}0]/2\ ^y\ \ c\times G_{n\text{-}1}\ [y\text{-}1{:}0]/2\ ^y$

.

3

$G_n'=f\ a\times G_n\ [y\text{-}1{:}0]/2\ ^y\ —b\times G_{n\text{-}1}\ [y\text{-}1{:}0]/2\ ^y\ \ c\times G_n\ [y\text{-}1{:}0]/2\ ^y$

,

4

$G_n'=f\ a\times G_n\ [y\text{-}1{:}0]/2\ ^y\ —b\times G_{n\text{-}1}\ [y\text{-}1{:}0]/2\ ^y\ \ c\times G_n\ [y\text{-}1{:}0]\times G_{n\text{-}1}\ [y\text{-}1{:}0]/2\ ^{2y}$.

,

x y (G $_n$)
(G $_n$) x y (G $_{n\text{-}1}$)
(G $_n$') ,

(G $_n$')

,

,

,

.

,

,

,

,

,

.

. 1

1 , 2 .

1 , (liquid crystal panel assembly,)(300) (gate driver)(420) (data driver)(430), (420) (driving voltage generator)(560) (430) (gray voltage generator)(570), (signal controller)(5 50) .

(300) (G $_0$ - G $_n$, D $_1$ - D $_m$) (pixel) , (G $_0$ - G $_n$, D $_1$ - D $_m$) (switching element)(Q) (C $_{lc}$) (storage capacitor)(C $_{st}$) . (G $_0$ - G $_n$, D $_1$ - D $_m$) (scanning signal) (gate signal) (G $_0$ - G $_n$) (image signal) (data signal) (D $_1$ - D $_m$) . (Q) , (G $_0$ - G $_n$) (D $_1$ - D $_m$) , (C $_{lc}$) (C $_{st}$) .

(C $_{lc}$) (Q) (common voltage) (reference voltage) . (C $_{st}$) (Q) [' (previous gate line)'] , (previous gate type) . (C $_{st}$) , (separate wire type) .

, (300) 2 . 2 .

2 , (300) (100) (200) (3) . (100) (G $_{i-1}$, G $_i$) (D $_j$) (Q) (C $_{st}$) . (C $_{lc}$) (100) (190) (200) (270) (190, 270) (3) .

(190) (Q) (270) (200) ( ) . (190) (270) (3) . (100, 200) ( ) . (190) (G $_{i-1}$) (G $_{i-1}$) (C $_{st}$) . (100) (190) (C $_{st}$) .

2 (Q) (MOS) , (amorphous silicon) (polysilicon) .

2 (270) (100) (190, 270) .

, , (190) , , (color filter)(230) . (230) 2 (200) (100) (190) .

1   ,   (420)   (430)   (scan driver)   (
source driver)   IC(integrated circuit)   IC
    .   IC   (300)   (300)   ,   (G $_0$
- G $_n$, D $_1$ - D $_m$)   (Q)   (300)   .

              (420)   (300)   (G $_0$ - G $_n$)   (560)
              (V $_{on}$)   (V $_{off}$)   (G $_0$ - G $_n$)
    .

              (430)   (300)   (D $_1$ - D $_m$)   (570)
         (gray voltage)   (D $_1$ - D $_m$)   .

                   (420)   (430),   (560)   (300)
                              (550)   .

              (550)   (graphic controller)(   )   RGB   (gray signal)(
R, G, B)   (input control signal),   (vertical synchro
nizing signal; V $_{sync}$)   (horizontal synchronizing signal; H $_{sync}$),   (main clock; CLK),
              (data enable signal; DE)   .   (550)
                        (R, G, B)   (300)
    ,   (R', G', B')   (430)   .   (550)
         .

                        (   )   (vertical
synchronization start signal; STV),   (gate clock signal;
CPV)   (gate on enable signal; OE)   .
                   (OE)   (CPV)   (560)   .
                        (horizontal synchronization start signal; STH)
                   (load signal; LOAD   TP)   (data clock sig
nal; HCLK)   .

              (420)   (550)   (G $_1$ -
G $_n$)   (G $_1$ - G $_n$)   (Q)   .
  (430)   (550)   (Q)
(R', G', B')   (570)   (D $_1$ - D $_m$)
    .   (D $_1$ - D $_m$)   (Q)   .
         ,   (frame)   (G $_1$ - G $_n$)
                   .

                   (550)
              ('   '   )   ('   '   )
                   .   10- 2000- 5442(
    : 2000. 2. 3)   10- 2000- 73672(: 2000. 12. 6),   09/773,603(: 2001.
2. 2),   01102227.4(: 2001. 1. 31),   01111679.X(: 2001. 2. 3),
                   2001- 28541(: 2001. 2. 5),   89123095(: 2000. 11. 2)   90101
788(: 2001. 1. 30)   ,
    .

                   ,   (MSB)   1
         ,   (LSB)
    .

              3   .

                   ,   8   ,   (MSB)   (LSB)   4
    .   2 ^{8} = 256   .

n 　　　　　　(G_n)(　　　　　　　　　　　　　　　　) 　　，(n-1) 　　　　　　　　　　(G_{n-1})(　　　　　　　　) 　　　　3 　　　．

　　　256 　　　　　(G_{n-1}) 　　　　(G_n) 　　　256×256=65,536

．

　，　　　　　　　　　　．

　　　　　　　　(G_{n-1}) 　　　　(G_n) 　　　(MSB)
(block) 　　　　　　3 　　　　　．
　　　(G_{n-1}) 　　　　(G_n) 　　　(LSB) O 　　．
　　　　　，　　　MSB 　　，
　　MSB 　．　　　　　　　　　MSB
MSB ．(
．) 　，A 　　　(G_{n-1}) MSB(　'　MSB'　G_{n-1}[7:4]
) [0100] ，　　　(G_n) MSB(　'　MSB'　G_n[7:4]) [01
00] ．B 　　MSB [0101] 　MSB [0011] ．

　　　　，　　　(G_{n-1}, G_n) 　　(LSB)
O 　　　．　　(interpolation)
．

．

1 = (G_n[7:4], G_{n-1}[7:4]),　2 = (G_n[7:4] 1, G_{n-1}[7:4]),

3 = (G_n[7:4], G_{n-1}[7:4] 1),　4 = (G_n[7:4] 1, G_{n-1}[7:4] 1)

．

，　　1 　2 　1 　3
．
．

．
(G'_{n-1}) 　　(G_n) 　　'　[3 ，　(D)] 　　(still image
) 　　．

3 (D) (E) 　(G_{n-1}) 　(G_n)
，
，
．

，(D) ，　3 A ．
A B ，(D) 　　(A1, A2) (D)
(A1) 　　(falling) 　(D) 　(A2)
(rising). 　(A1, A2)
，．

．
(A1, A2) ．(D) (A1)
1，3，4 ，(D) (A2) 1，2 4
．

．

x   MSB   , y   LSB   ,   G $_n$'   .

(D)   (B)   (G $_n$')

1

$$G_n' = f + a \times G_n[y-1:0]/2^y - b \times G_{n-1}[y-1:0]/2^y + c \times G_n[y-1:0] \times G_{n-1}[y-1:0]/2^{2y}$$

, f   ,

2a

$$f(G_n[x+y-1:y], G_{n-1}[x+y-1:y]) = G_n'(G_n[x+y-1:y] \times 2^y, G_{n-1}[x+y-1:y] \times$$

$$2^y)$$

a   .   ,

2b

$$a(G_n[x+y-1:y], G_{n-1}[x+y-1:y]) = f(G_n[x+y-1:y]+1, G_{n-1}[x+y-1:y])$$

$$- \cdot f(G_n[x+y-1:y], G_{n-1}[x+y-1:y])$$

, b   .   ,

2c

$$b(G_n[x+y-1:y], G_{n-1}[x+y-1:y]) = f(G_n[x+y-1:y], G_{n-1}[x+y-1:y])$$

$$- f(G_n[x+y-1:y], G_{n-1}[x+y-1:y]+1)$$

c

.   ,

2d

$$c(G_n[x+y-1:y], G_{n-1}[x+y-1:y])$$

$$= f(G_n[x+y-1:y]+1, G_{n-1}[x+y-1:y]+1) + f(G_n[x+y-1:y], G_{n-1}[x+y-1:y])$$

$$- f(G_n[x+y-1:y]+1, G_{n-1}[x+y-1:y]) - f(G_n[x+y-1:y], G_{n-1}[x+y-1:y]+1)$$

(G_{n-1})　　　　　(G_n)　　　　，　　3　　　　(D)　　　　　　，

$G_n - G_{n-1}$　　　$($　　　　　　　　$)$

3

$$G_n' = G_n$$

(D)　　　　　(A)　　　　　　　(G_n)　　　　　(G_{n-1})　　　　　$(A1)$
　　(G_n')　$[$　　1]　　　　$'c \times G_n[y-1:0] \times G_{n-1}[y-1:0]/2^{2y}$'　　$'c \times G_n[y-1:0]/2$
y'　　　　　　　　．　，

4

$$G_n' = f + a \times G_n[y-1:0]/2^y - b \times G_{n-1}[y-1:0]/2^y + c \times G_n[y-1:0]/2^y$$

(A)　　　　　　　(G_n)　　　　　(G_{n-1})　　　　　$(A2)$　　　　　(G_n')　$[$
1]　　　　$'c \times G_n[y-1:0] \times G_{n-1}[y-1:0]/2^{2y}$'　　$'c \times G_{n-1}[y-1:0]/2^y$'　　　　．，

5

$$G_n' = f + a \times G_n[y-1:0]/2^y - b \times G_{n-1}[y-1:0]/2^y + c \times G_{n-1}[y-1:0]/2^y$$

，

4

4 (gray signal modifier) .

4 (600) (signal synthesizer)(61),
(61) (frame memory)(62), (62) (63),
(61) (62) (gray signal converter)(64) (6
4) (signal separator)(65) .

(64) (61) (62) (lookup talbe)(641),
(641) (61) (620) (65)
(calculator)(643), (62) (643)
(case selector)(642) .

8 (MSB) (LSB) 4 . (
) (G_m) , 4 (600) (61)
(600) (G_m) , (G_m)
(62) , (62)
(64) . , R, G, B 8 24
(G_m) 65MHz , (600) 50MHz
, (61) 24 (G_m) 2 48 (G_n) .
(61) (G_n) (62) (64) ,
$(G_n[7:4])$ $(G_n[3:0])$ (64) .

(63) (62) (G_{n-1}) (64) ,
(61) (G_n) (G_{n-1}) (62)
.

(64) (61) (G_n) (62)
(G_{n-1}) (G_n') (65) . (65) 48
(G_n') 24 .

(61) (62) (64) (G_n, G_{n-1}) (G
$_n[7:4])$ $(G_n[3:0])$, $(G_n[7:4])$ (641) ,
$(G_n[3:0])$ (643) . (61) (62) (64)
(642) (G_n, G_{n-1}) .

(64) (641) 3
, LSB LSB 0 f, a, b, c
.

8 MSB LSB 4 ,

6a

$$f(G_n[7:4],\ G_{n-1}[7:4]) = G_n'(G_n[7:4]\times16,\ G_{n-1}[7:4]\times16)$$

6b

$$a(G_n[7:4],\ G_{n-1}[7:4]) = f(G_n[7:4]+1,\ G_{n-1}[7:4])-f(G_n[7:4],\ G_{n-1}[7:4])$$

6c

$$b(G_n[7:4], G_{n-1}[7:4]) = f(G_n[7:4], G_{n-1}[7:4])-f(G_n[7:4], G_{n-1}[7:4]+1)$$

6d

$$c(G_n[7:4], G_{n-1}[7:4]) = f(G_n[7:4]+1, G_{n-1}[7:4]+1)+f(G_n[7:4], G_{n-1}[7:4])$$

$$-f(G_n[7:4]+1, G_{n-1}[7:4]) - f(G_n[7:4], G_{n-1}[7:4]+1)$$

3   B   , (G_n) 51=[00110011] (G_{n-1})
87=[01010111]   .   MSB($G_n[7:4]$) [0011] = 3   ,   MSB($G_{n-1}[7:4]$) [0101]
= 5   .

(f, a, b, c)   .

7a

$$f(3, 5) = G_n'(G_n = 48, G_{n-1} = 80)$$

7b

$$a(3, 5) = f(4, 5)-f(3, 5) = G_n'(G_n=64, G_{n-1}=80)-G_n'(G_n=48, G_{n-1}=80)$$

7c

$$b(3, 5) = f(3, 5)-f(3, 6) = G_n'(G_n=48, G_{n-1}=80)-G_n'(G_n=48, G_{n-1}=96)$$

7d

$$c(3, 5) = f(4, 6)+f(3, 5)-f(4, 5)-f(3, 6)$$

$$= G_n'(G_n=64, G_{n-1}=96)+G_n'(G_n=48, G_{n-1}=80)$$

$$- G_n'(G_n=64, G_{n-1}=80)-G_n'(G_n=48, G_{n-1}=96)$$

(641)   MSB   MSB   f, a, b, c   (643)
.

,   (642)   (62)   (G $_{n-1}$)   (61)
(G $_{n}$)   ,   (643)   (642)   ,
                              ,   (G $_{n}$')   .

5   ,   (642)   (643)   .

5   (642)   (643)   .

,   (S10),   (642)   (61)   (62)   (G
$_{n-1}$ [7:0])   (G $_{n}$ [7:0])   (S11).

,   (642)   (G $_{n-1}$)   (G $_{n}$)   ,   (
)   (S12).

,   ( )   ,   .   O
16   ,   256   , O   16   .

(G $_{n-1}$)   (G $_{n}$)   ( )   ,   ( )
              (642)   (642)   .

              (642)   ,   (G $_{n}$)   (G $_{n}$')
(S13).

              (G $_{n-1}$)   (G $_{n}$)   ( )   ,   (642)
    MSB(G $_{n-1}$ [7:4])   MSB(G $_{n}$ [7:4])   (S14).

MSB(G $_{n-1}$ [7:4], G $_{n}$ [7:4])   ,   LSB(G $_{n-1}$ [3:0])   LSB(G $_{n}$ [3:0])   (S15).
    LSB(G $_{n}$ [3:0])   LSB(G $_{n-1}$ [3:0])   ,   (643)   .

              (643)   [5]   ,   (641)   f, a, b, c   LSB(
G $_{n-1}$ [3:0], G $_{n}$ [3:0])   (G $_{n}$')   (S16).   (G $_{n}$')

$$G_n' = f + a \times G_n[3:0]/2^4 - b \times G_{n-1}[3:0]/2^4 + c \times G_{n-1}[3:0]/2^4$$

.

              LSB(G $_{n}$ [3:0])   LSB(G $_{n-1}$ [3:0])   ,   (643)
(S17).   (643)   [4]   f, a, b, c   LSB(G $_{n-1}$ [3:0], G
$_{n}$ [3:0])   (G $_{n}$')   (S17).   (G $_{n}$')

$$G_n' = f + a \times G_n[3:0]/2^4 - b \times G_{n-1}[3:0]/2^4 + c \times G_n[3:0]/2^4$$

.

              (S14)   '   '   ,   MSB(G $_{n}$ [7:4], G $_{n-1}$ [7:4])   ,
    (643)   .

              (643)   [1]   f, a, b, c   LSB(G $_{n-1}$ [3:0], G $_{n}$ [3:0])
    (G $_{n}$')   .   (G $_{n}$')

$$G_n' = f + a \times G_n[3:0]/2^4 - b \times G_{n-1}[3:0]/2^4 + c \times G_n[3:0] \times G_{n-1}[3:0]/2^8$$

.

(64)   '   (G ~~n-1~~ , G ~~n~~)
                (G ~~n~~ ')   (65)   .

                                                    (62)
        '   (61)   (65)   '
                (61)   (65)   .

                        (64)   ROM(read only memory)
                                                                            .

                (64)   (550)   ,   (550)
                                                                    .

        '   '
            '   '
                        .

                    .

(57)

    1.
                    '

                (G ~~n~~)   (G ~~n-1~~)
                                                                            (G ~~n~~)
            '

                        (G ~~n~~ ')

            .

    2.
1   ,

1   2   .

    3.
2   ,

2   3
            4   ,

3   4

.

4.

3 ,

,

3 4   (MSB)

.

5.

4 ,

2

5 ,

5   3 4

.

6.

2   5 ,

1 .

7.

1 ,

.

8.

7 ,

,

,

,

,

,

.

9.

8 ,

'0'

, .

10.

9 ,

1 4 ,

1 ,

2 ,

,

3 ,

,

4 1 3

.

11.

10 ,

f, a, b, c ,

f(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y])=G $_n$ '(G $_n$ [x y- 1:y] × 2 ^{y} , G $_{n-1}$ [x y- 1:y] × 2 ^{y}),

a(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y])=f(G $_n$ [x y- 1:y] 1, G $_{n-1}$ [x y- 1:y])

- f(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y]),

b(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y])=f(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y])

- f(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y] 1),

c(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y])

= f(G $_n$ [x y- 1:y] 1, G $_{n-1}$ [x y- 1:y] 1) f(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y])

- f(G $_n$ [x y- 1:y] 1, G $_{n-1}$ [x y- 1:y])- f(G $_n$ [x y- 1:y], G $_{n-1}$ [x y- 1:y] 1)

(x , y

.)

,

1 ,

2 (G $_n$ ')

G $_n$ '=f a× G $_n$ [y- 1:0]/2 ^{y} —b× G $_{n-1}$ [y- 1:0]/2 ^{y} c× G $_{n-1}$ [y- 1:0]/2 ^{y}

,

3

G $_n$ '=f a× G $_n$ [y- 1:0]/2 ^{y} —b× G $_{n-1}$ [y- 1:0]/2 ^{y} c× G $_n$ [y- 1:0]/2 ^{y}

,

4

G $_n$ ' = f a× G $_n$ [y- 1:0]/2 ^{y} —b× G $_{n-1}$ [y- 1:0]/2 ^{y} c× G $_n$ [y- 1:0]× G $_{n-1}$ [y- 1:0]/2 ^{2y}

.

12.

1   ,

          ,

          .

13.

                              ,

                    x   y   (G $_n$)
(G $_n$)   x   y   (G $_{n-1}$)
      (G $_n$ ')   ,

                                        (G $_n$ ')

          ,

                                                                                                ,

                              ,

                    .

14.

13   ,

                                                                        O   ,

                                        x   y
                                G $_n$ ([x+ y- 1:y]), G $_n$ ([y- 1:O])   ,
                        G $_{n-1}$ ([x+ y- 1:y]), G $_{n-1}$ ([y- 1:O])

(G $_n$ [x   y- 1:x], G $_{n-1}$ [x   y- 1:x]), (G $_n$ [x   y- 1:x]   1, G $_{n-1}$ [x   y- 1:x]), (G $_n$ [x   y- 1:x], G $_{n-1}$[x   y- 1:x]   1), (G $_n$ [x   y- 1:x]   1, G $_{n-1}$ [x   y- 1:x]   1)

          .

15.

14   ,

                (G $_n$ ')   ,

G $_n$ ' = f   a× G $_n$ [y- 1:O] /2 ^{y} —b× G $_{n-1}$ [y- 1:O] /2 ^{y} c× G $_n$ [y- 1:O] × G $_{n-1}$ [y- 1:O] /2 ^{2y}

          ,

$f(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y])=G_n{}'(G_n[x\quad y-1:y]\times 2^y, G_{n-1}[x\quad y-1:y]\times 2^y),$

$a(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y])=f(G_n[x\quad y-1:y]\quad 1, G_{n-1}[x\quad y-1:y])$

$- f(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y]),$

$b(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y])=f(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y])$

$- f(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y]\quad 1),$

$c(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y])$

$= f(G_n[x\quad y-1:y]\quad 1, G_{n-1}[x\quad y-1:y]\quad 1)\quad f(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y])$

$- f(G_n[x\quad y-1:y]\quad 1, G_{n-1}[x\quad y-1:y])- f(G_n[x\quad y-1:y], G_{n-1}[x\quad y-1:y]\quad 1),$

$(\qquad x\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad , y$

$.)$

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16.

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'

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17.

16 ,

1 4 ,

1 '

2 '

'

3 '

'

4 1 3

.

18.

17   ，

$f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y]) = G_n'(G_n[x \quad y-1:y] \times 2^y, G_{n-1}[x \quad y-1:y] \times 2^y),$

$a(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y]) = f(G_n[x \quad y-1:y] \quad 1, G_{n-1}[x \quad y-1:y])$

$- f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y]),$

$b(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y]) = f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y])$

$- f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y] \quad 1),$

$c(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y])$

$= f(G_n[x \quad y-1:y] \quad 1, G_{n-1}[x \quad y-1:y] \quad 1) \quad f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y])$

$- f(G_n[x \quad y-1:y] \quad 1, G_{n-1}[x \quad y-1:y]) - f(G_n[x \quad y-1:y], G_{n-1}[x \quad y-1:y] \quad 1),$

(x   , y

             .)

          f, a, b, c   .

19.

18   ，

     1   ，

     2   (G_n')

$G_n' = f \quad a \times G_n[y-1:0]/2^y \quad —b \times G_{n-1}[y-1:0]/2^y \quad c \times G_{n-1}[y-1:0]/2^y$

          ，

     3

$G_n' = f \quad a \times G_n[y-1:0]/2^y \quad —b \times G_{n-1}[y-1:0]/2^y \quad c \times G_n[y-1:0]/2^y$

          ，

     4

$G_n' = f \quad a \times G_n[y-1:0]/2^y \quad —b \times G_{n-1}[y-1:0]/2^y \quad c \times G_n[y-1:0] \times G_{n-1}[y-1:0]/2^{2y}$
          .

1

2

3

4

5

```
        ┌──────────────┐
        ( 시  작 )────── S10
        └──────────────┘
               │
        ┌──────────────────────┐
        │ 이전 계조신호(Gn-1)와   │──── S11
        │ 현재 계조신호(Gn) 판독  │
        └──────────────────────┘
               │
              S12
        ◇─────────────────◇  예      ┌──────────────────┐
        │ |Gn−Gn−1|≤α      │────────→ │ Gn'=Gn           │── S13
        │      ?          │          └──────────────────┘
        ◇─────────────────◇                 │
               │ 아니오                    ( 리  턴 )
              S14                            
        ◇─────────────────◇  예
        │ Gn[7:4]=Gn−1[7:4]│─────────┐
        │      ?          │         │
        ◇─────────────────◇        S15
               │ 아니오      ◇────────────────────◇  예
                            │ Gn[3:0]>Gn−1[3:0]  │──────┐
                            │       ?            │      │
                            ◇────────────────────◇      │
                                   │ 아니오            │
```

$$G_n' = f + a \times G_n[3:0]/16 - b \times G_{n-1}[3:0]/16 + c \times G_n[3:0] \times G_{n-1}[3:0]/256$$

$$G_n' = f + a \times G_n[3:0]/16 - b \times G_{n-1}[3:0]/16 + c \times G_n[3:0]/16$$

$$G_n' = f + a \times G_n[3:0]/16 - b \times G_{n-1}[3:0]/16 + c \times G_{n-1}[3:0]/16$$

S18   S17   S16

(리 턴)──── S100
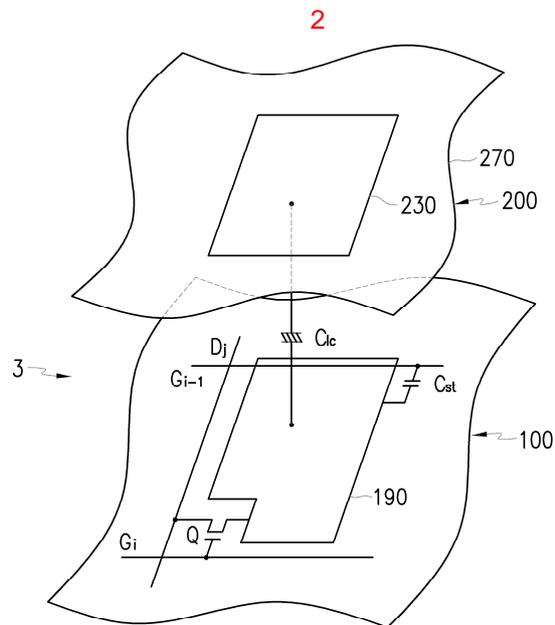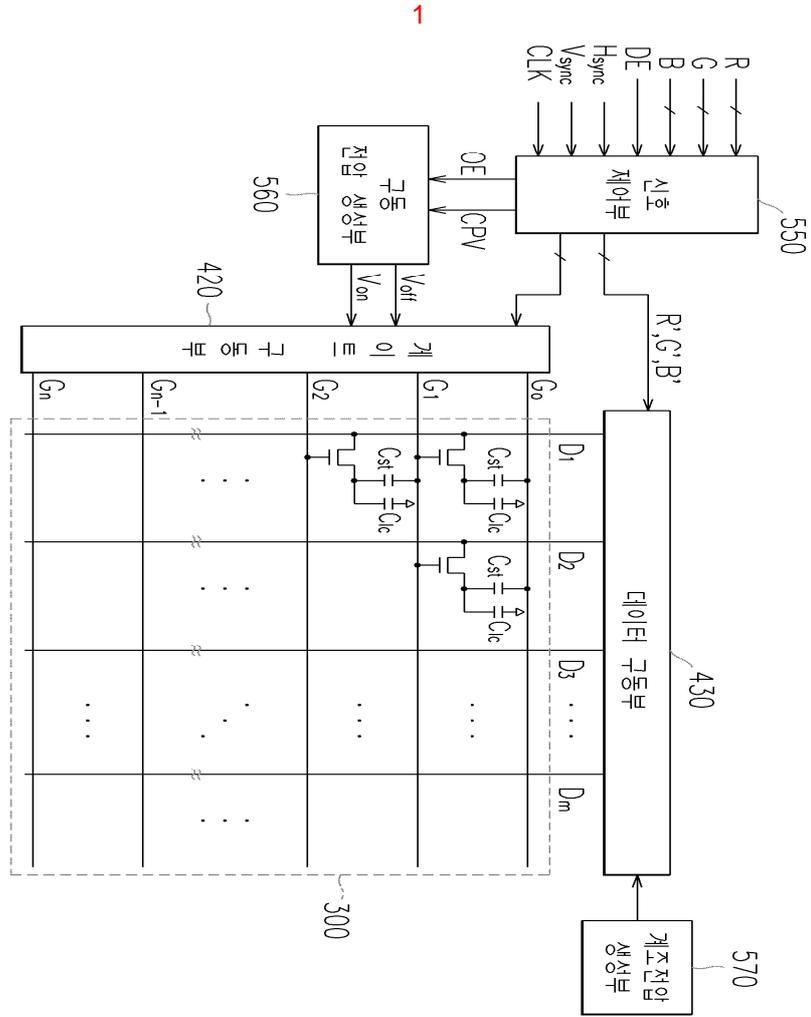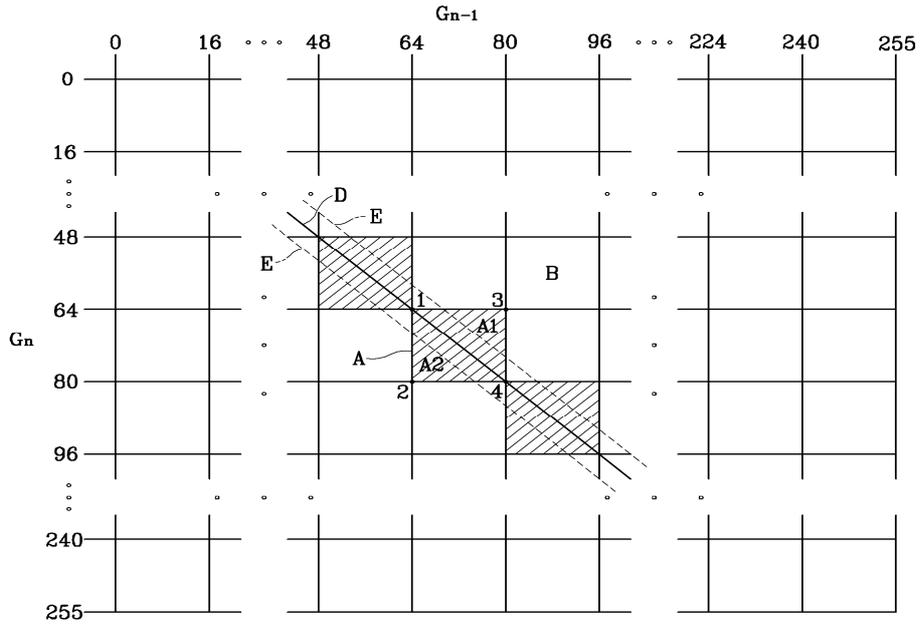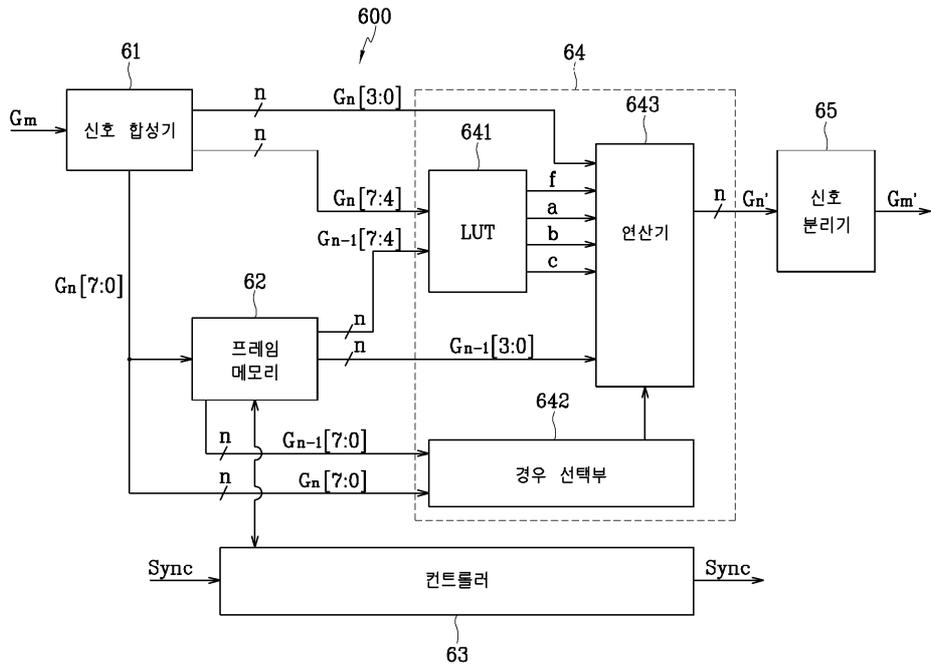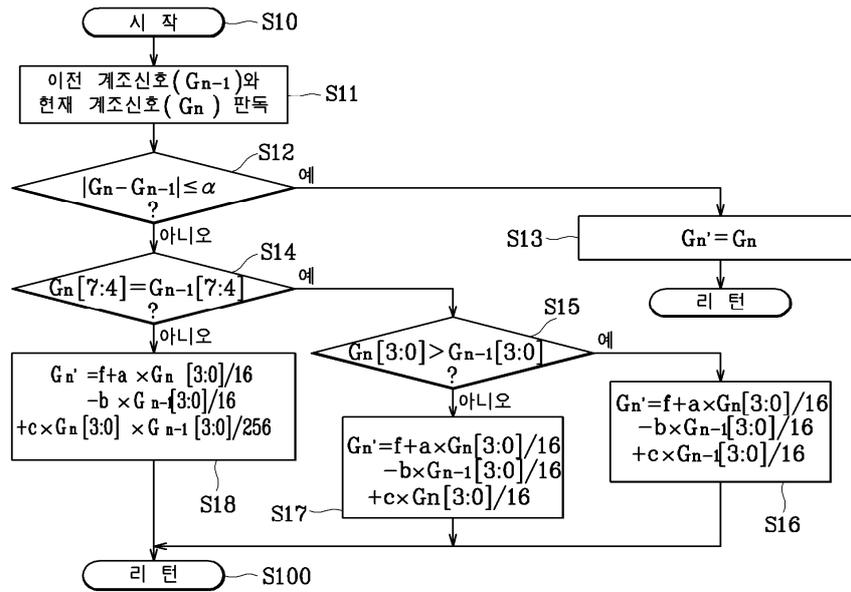
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摘要(译)

本发明涉及液晶显示器和灰度信号补偿方法，灰度信号调节器包括选择单元，在产生信号的情况下，将前一个梯度信号和梯度信号对分为两组或多组。输出通过存储梯度信号存储的先前梯度信号和来自梯度信号和帧存储器的当前梯度信号，以及输出等效值的查找表的帧存储器的差异的特性。根据来自梯度信号和帧存储器的高位的先前梯度信号的高位变化。此外，来自查找表的变量，以及运算符从梯度信号的最低有效位计算先前梯度信号的最低有效位然后，包括根据来自壳体选择单元的信号确定的模式的帧存储器，并产生校正梯度信号。并且校正梯度信号是关于先前梯度信号和梯度信号的当前，最低有效位一起为"0"的点预先确定的。确定如上所述由预定校正梯度信号确定变量的校正梯度信号。因此，根据梯度信号的差异性质，可以显着降低校准误差和不连续性，区分校正方法。因此，进行了适合该差异的特性的校正操作，并且改善了图像质量。液晶显示器，运动图像，查找表，光度校正，插值，LCD。