

OSD firmware API description

Note: this API is part of the decoder firmware, so it's cx23415 only.

Name CX2341X_OSD_GET_FRAMEBUFFER
Enum 65/0x41
Description Return base and length of contiguous OSD memory.
Result[0] OSD base address
Result[1] OSD length

Name CX2341X_OSD_GET_PIXEL_FORMAT
Enum 66/0x42
Description Query OSD format
Result[0]
0=8bit index
1=16bit RGB 5:6:5
2=16bit ARGB 1:5:5:5
3=16bit ARGB 1:4:4:4
4=32bit ARGB 8:8:8:8

Name CX2341X_OSD_SET_PIXEL_FORMAT
Enum 67/0x43
Description Assign pixel format
Param[0]
0=8bit index
1=16bit RGB 5:6:5
2=16bit ARGB 1:5:5:5
3=16bit ARGB 1:4:4:4
4=32bit ARGB 8:8:8:8

Name CX2341X_OSD_GET_STATE
Enum 68/0x44
Description Query OSD state
Result[0]
Bit 0 0=off, 1=on
Bits 1:2 alpha control
Bits 3:5 pixel format

Name CX2341X_OSD_SET_STATE

Enum 69/0x45
Description
OSD switch
Param[0]
0=off, 1=on

Name CX2341X_OSD_GET_OSD_COORDS
Enum 70/0x46
Description
Retrieve coordinates of OSD area blended with video
Result[0]
OSD buffer address
Result[1]
Stride in pixels
Result[2]
Lines in OSD buffer
Result[3]
Horizontal offset in buffer
Result[4]
Vertical offset in buffer

Name CX2341X_OSD_SET_OSD_COORDS
Enum 71/0x47
Description
Assign the coordinates of the OSD area to blend with video
Param[0]
buffer address
Param[1]
buffer stride in pixels
Param[2]
lines in buffer
Param[3]
horizontal offset
Param[4]
vertical offset

Name CX2341X_OSD_GET_SCREEN_COORDS
Enum 72/0x48
Description
Retrieve OSD screen area coordinates
Result[0]
top left horizontal offset
Result[1]
top left vertical offset
Result[2]
bottom right horizontal offset
Result[3]
bottom right vertical offset

Name CX2341X_OSD_SET_SCREEN_COORDS
Enum 73/0x49
Description Assign the coordinates of the screen area to blend with video
Param[0] top left horizontal offset
Param[1] top left vertical offset
Param[2] bottom left horizontal offset
Param[3] bottom left vertical offset

Name CX2341X_OSD_GET_GLOBAL_ALPHA
Enum 74/0x4A
Description Retrieve OSD global alpha
Result[0] global alpha: 0=off, 1=on
Result[1] bits 0:7 global alpha

Name CX2341X_OSD_SET_GLOBAL_ALPHA
Enum 75/0x4B
Description Update global alpha
Param[0] global alpha: 0=off, 1=on
Param[1] global alpha (8 bits)
Param[2] local alpha: 0=on, 1=off

Name CX2341X_OSD_SET_BLEND_COORDS
Enum 78/0x4C
Description Move start of blending area within display buffer
Param[0] horizontal offset in buffer
Param[1] vertical offset in buffer

Name CX2341X_OSD_GET_FLICKER_STATE
Enum 79/0x4F
Description Retrieve flicker reduction module state
Result[0]

flicker state: 0=off, 1=on

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Name      CX2341X_OSD_SET_FLICKER_STATE
Enum      80/0x50
Description
    Set flicker reduction module state
Param[0]
    State: 0=off, 1=on

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Name      CX2341X_OSD_BLT_COPY
Enum      82/0x52
Description
    BLT copy
Param[0]
    '0000' zero
    '0001' ~destination AND ~source
    '0010' ~destination AND source
    '0011' ~destination
    '0100' destination AND ~source
    '0101' destination AND source
    '0110' destination XOR source
    '0111' ~destination OR ~source
    '1000' ~destination AND ~source
    '1001' destination XNOR source
    '1010' destination XOR source
    '1011' ~destination OR source
    '1100' destination
    '1101' destination OR ~source
    '1110' destination OR source
    '1111' one
Param[1]
    Resulting alpha blending
        '01' source_alpha
        '10' destination_alpha
        '11' source_alpha*destination_alpha+1
            (zero if both source and destination alpha are zero)
Param[2]
    '00' output_pixel = source_pixel
    '01' if source_alpha=0:
        output_pixel = destination_pixel
    if 256 > source_alpha > 1:
        output_pixel = ((source_alpha + 1)*source_pixel +
            (255 - source_alpha)*destination_pixel)/256
    '10' if destination_alpha=0:
        output_pixel = source_pixel
    if 255 > destination_alpha > 0:
        output_pixel = ((255 - destination_alpha)*source_pixel +
            (destination_alpha + 1)*destination_pixel)/256

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'11' if source_alpha=0:
    source_temp = 0
    if source_alpha=255:
        source_temp = source_pixel*256
    if 255 > source_alpha > 0:
        source_temp = source_pixel*(source_alpha + 1)
    if destination_alpha=0:
        destination_temp = 0
    if destination_alpha=255:
        destination_temp = destination_pixel*256
    if 255 > destination_alpha > 0:
        destination_temp = destination_pixel*(destination_alpha + 1)
    output_pixel = (source_temp + destination_temp)/256

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Param[3] width
 Param[4] height
 Param[5] destination pixel mask
 Param[6] destination rectangle start address
 Param[7] destination stride in dwords
 Param[8] source stride in dwords
 Param[9] source rectangle start address

Name CX2341X_OSD_BLT_FILL
 Enum 83/0x53
 Description
 BLT fill color
 Param[0] Same as Param[0] on API 0x52
 Param[1] Same as Param[1] on API 0x52
 Param[2] Same as Param[2] on API 0x52
 Param[3] width
 Param[4] height
 Param[5] destination pixel mask
 Param[6] destination rectangle start address
 Param[7] destination stride in dwords
 Param[8] color fill value

Name CX2341X_OSD_BLT_TEXT

Enum 84/0x54

Description

BLT for 8 bit alpha text source

Param[0]

Same as Param[0] on API 0x52

Param[1]

Same as Param[1] on API 0x52

Param[2]

Same as Param[2] on API 0x52

Param[3]

width

Param[4]

height

Param[5]

destination pixel mask

Param[6]

destination rectangle start address

Param[7]

destination stride in dwords

Param[8]

source stride in dwords

Param[9]

source rectangle start address

Param[10]

color fill value

Name CX2341X_OSD_SET_FRAMEBUFFER_WINDOW

Enum 86/0x56

Description

Positions the main output window on the screen. The coordinates must be such that the entire window fits on the screen.

Param[0]

window width

Param[1]

window height

Param[2]

top left window corner horizontal offset

Param[3]

top left window corner vertical offset

Name CX2341X_OSD_SET_CHROMA_KEY

Enum 96/0x60

Description

Chroma key switch and color

Param[0]

state: 0=off, 1=on

Param[1]

color

Name CX2341X_OSD_GET_ALPHA_CONTENT_INDEX

Enum 97/0x61

Description

Retrieve alpha content index

Result[0]

alpha content index, Range 0:15

Name CX2341X_OSD_SET_ALPHA_CONTENT_INDEX

Enum 98/0x62

Description

Assign alpha content index

Param[0]

alpha content index, range 0:15