AND9568/D

AP0100CS Register and Variable Reference

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APPLICATION NOTE

INTRODUCTION

This reference document describes the AP0100CS registers and variables accessible by the host.

HOW TO ACCESS REGISTERS AND VARIABLES

The host can control the AP0100CS in three ways:

- By issuing commands to the embedded microcontroller
- By reading and writing firmware variables, which influence the operation of the embedded microcontrollers
- By reading and writing hardware registers

In each case, the physical interface to the AP0100CS is the two−wire serial interface, using 16−bit addresses. The AP0100CS Data Sheet describes the interface protocol of the two−wire serial interface in more detail.

Where possible, the AP0100CS should be controlled though commands and variables since these have been designed to provide correctly−sequenced control of the underlying hardware. In contrast, access to registers is discouraged, since it may cause undesired interaction with microcontroller operations.

Registers

Registers can be accessed by the two−wire serial interface with addresses in the range 0x0000−0x7FFE. All registers are 16−bits in size and register access only supports 16−bit data read and write.

Variables

Variables correspond to locations in the memory space of the embedded microcontroller. Variables can be accessed by the two−wire serial interface with addresses in the range 0x8000−0xFFFF. Variables can be 8, 16 or 32−bit in size and variable access supports access of any 8−bit multiple.

Variables are divided into groups called “Drivers”. Each variable is specified by a driver number (0...31) and an offset. This document uses the notation VAR (driver_number, offset). Given a driver number and offset, the corresponding address is calculated like this:

Direct−Address = 0x8000 | (driver_number << 10) | offset

For example, ae_rule_algo is VAR(0x09, 0x0004). Its direct address is therefore 0x8000 | (9<<10) | 4 = 0xA404.

Host Command Interface

The AP0100CS supports a host command interface. The host issues a 16−bit command to the device by performing a register write to the command register (SYSCTL 0x40). Each command has bit[15]=1. When the embedded microcontroller has completed execution of the command it writes a response to the command register. Each response has bit[15]=0. When the host has issued a command, it can poll the command register waiting for bit[15]=0 to see that the command has completed and to read the command response.

The AP0100CS Host Command Interface Specification describes this interface in more detail.

Reserved

Do not change any of the reserved bits.

REGISTER MAP

The tables in this section show which locations are used within the 16−bit address space. Locations that are not shown in the table are reserved for future use; to maintain compatibility with future designs they should not be read from or written to. Locations that are shown as “Reserved” should not be accessed. The default read values of registers are subject to change.

CAUTION: The effect of writing to reserved registers is undefined and includes the possibility of causing permanent electrical damage to the device.

Table 1 below through Table 8 list registers and their default values. Table 9 through Table 26 lists variables and their default values. Register addresses are shown as 16−bit values in both decimal and hexadecimal. Variable addresses are shown in VAR(driver_id, offset) format, and also as 16−bit hexadecimal values using the Direct−Address conversion shown above. Table 27 through Table 34 list registers and their descriptions. Table 35 through Table 52 list variables and their descriptions.

Register Lists and Default Values

SYSCTL Register List

Table 1. SYSCTL REGISTER LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R0 (R0x0000)	chip_version_reg	0000000001100010	98 (0x0062)
R6 (R0x0006)	user_defined_device_address_id	dddd ddd0 dddd ddd0	47760 (0xBA90)
R26 (R0x001A)	reset_and_misc_control	0000 dddd 0??? 0ddd	3588 (0x0E04)
R32 (R0x0020)	mcu_boot_options	0000 0000 dddd dd0d	0 (0x0000)
R64 (R0x0040)	command_register	dddd dddd dddd dddd	32768 (0x8000)
R88 (R0x0058)	customer_rev	dddd dddd dddd dddd	514 (0x0202)

CPIPE Control Registers List

Table 2. CPIPE CONTROL REGISTER LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R12816 (R0x3210)	color_pipeline_control	000d dddd d0dd d000	2224 (0x08B0)

CPIPE Kernel Registers List

Table 3. CPIPE KERNEL REGISTER

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R12832 (R0x3220)	dm_edge_th	0000 0000 dddd dddd	12 (0x000C)
R12834 (R0x3222)	grb_pos_thresholds	dddd dddd dddd dddd	4104 (0x1008)
R12836 (R0x3224)	grb_neg_thresholds	dddd dddd dddd dddd	4104 (0x1008)

CPIPE YUV Pipe Register List

Table 4. CPIPE KERNEL REGISTER

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R13312 (R0x3400)	hue1_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13314 (R0x3402)	hue2_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13316 (R0x3404)	hue3_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13318 (R0x3406)	hue4_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13320 (R0x3408)	hue5_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13322 (R0x340A)	hue6_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13324 (R0x340C)	hue7_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13326 (R0x340E)	hue8_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13328 (R0x3410)	hue9_q1q2	00dd dddd 00dd dddd	0 (0x0000)
R13330 (R0x3412)	hue10_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13332 (R0x3414)	hue11_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13334 (R0x3416)	hue12_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13336 (R0x3418)	hue13_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13338 (R0x341A)	hue14_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13340 (R0x341C)	hue15_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13342 (R0x341E)	hue16_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13344 (R0x3420)	hue17_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13346 (R0x3422)	hue18_q3q4	00dd dddd 00dd dddd	0 (0x0000)
R13348 (R0x3424)	pcr_color_gain1_region_1	0000 0000 0000 dddd	0 (0x0000)
R13350 (R0x3426)	pcr_color_gain1_region_10	0000 0000 0000 dddd	0 (0x0000)
R13352 (R0x3428)	pcr_color_gain1_region_19	0000 0000 0000 dddd	0 (0x0000)
R13354 (R0x342A)	pcr_color_gain1_region_28	0000 0000 0000 dddd	0 (0x0000)
R13356 (R0x342C)	pcr_color_gain2_region_2	0000 0000 0000 dddd	0 (0x0000)
R13358 (R0x342E)	pcr_color_gain2_region_11	0000 0000 0000 dddd	0 (0x0000)

Table 4. CPIPE KERNEL REGISTER (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R13360 (R0x3430)	pcr_color_gain2_region_20	0000 0000 0000 dddd	0 (0x0000)
R13362 (R0x3432)	pcr_color_gain2_region_29	0000 0000 0000 dddd	0 (0x0000)
R13364 (R0x3434)	pcr_color_gain3_region_3	0000 0000 0000 dddd	0 (0x0000)
R13366 (R0x3436)	pcr_color_gain3_region_12	0000 0000 0000 dddd	0 (0x0000)
R13368 (R0x3438)	pcr_color_gain3_region_21	0000 0000 0000 dddd	0 (0x0000)
R13370 (R0x343A)	pcr_color_gain3_region_30	0000 0000 0000 dddd	0 (0x0000)
R13372 (R0x343C)	pcr_color_gain4_region_4	0000 0000 0000 dddd	0 (0x0000)
R13374 (R0x343E)	pcr_color_gain4_region_13	0000 0000 0000 dddd	0 (0x0000)
R13376 (R0x3440)	pcr_color_gain4_region_22	0000 0000 0000 dddd	0 (0x0000)
R13378 (R0x3442)	pcr_color_gain4_region_31	0000 0000 0000 dddd	0 (0x0000)
R13380 (R0x3444)	pcr_color_gain5_region_5	0000 0000 0000 dddd	0 (0x0000)
R13382 (R0x3446)	pcr_color_gain5_region_14	0000 0000 0000 dddd	0 (0x0000)
R13384 (R0x3448)	pcr_color_gain5_region_23	0000 0000 0000 dddd	0 (0x0000)
R13386 (R0x344A)	pcr_color_gain5_region_32	0000 0000 0000 dddd	0 (0x0000)
R13388 (R0x344C)	pcr_color_gain6_region_6	0000 0000 0000 dddd	0 (0x0000)
R13390 (R0x344E)	pcr_color_gain6_region_15	0000 0000 0000 dddd	0 (0x0000)
R13392 (R0x3450)	pcr_color_gain6_region_24	0000 0000 0000 dddd	0 (0x0000)
R13394 (R0x3452)	pcr_color_gain6_region_33	0000 0000 0000 dddd	0 (0x0000)
R13396 (R0x3454)	pcr_color_gain7_region_7	0000 0000 0000 dddd	0 (0x0000)
R13398 (R0x3456)	pcr_color_gain7_region_16	0000 0000 0000 dddd	0 (0x0000)
R13400 (R0x3458)	pcr_color_gain7_region_25	0000 0000 0000 dddd	0 (0x0000)
R13402 (R0x345A)	pcr_color_gain7_region_34	0000 0000 0000 dddd	0 (0x0000)
R13404 (R0x345C)	pcr_color_gain8_region_8	0000 0000 0000 dddd	0 (0x0000)
R13406 (R0x345E)	pcr_color_gain8_region_17	0000 0000 0000 dddd	0 (0x0000)
R13408 (R0x3460)	pcr_color_gain8_region_26	0000 0000 0000 dddd	0 (0x0000)
R13410 (R0x3462)	pcr_color_gain8_region_35	0000 0000 0000 dddd	0 (0x0000)

Table 4. CPIPE KERNEL REGISTER (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R13412 (R0x3464)	pcr_color_gain9_region_9	0000 0000 0000 dddd	0 (0x0000)
R13414 (R0x3466)	pcr_color_gain9_region_18	0000 0000 0000 dddd	0 (0x0000)
R13416 (R0x3468)	pcr_color_gain9_region_27	0000 0000 0000 dddd	0 (0x0000)
R13418 (R0x346A)	pcr_color_gain9_region_36	0000 0000 0000 dddd	0 (0x0000)

CPIPE Reconstruct Register List

Table 5. CPIPE RECONSTRUCT REGISTER LIST
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R13824 (R0x3600)	p_g1_p0q0	dddd dddd dddd dddd	16 (0x0010)
R13826 (R0x3602)	p_g1_p0q1	dddd dddd dddd dddd	0 (0x0000)
R13828 (R0x3604)	p_g1_p0q2	dddd dddd dddd dddd	0 (0x0000)
R13830 (R0x3606)	p_g1_p0q3	dddd dddd dddd dddd	0 (0x0000)
R13832 (R0x3608)	p_g1_p0q4	dddd dddd dddd dddd	0 (0x0000)
R13834 (R0x360A)	p_r_p0q0	dddd dddd dddd dddd	16 (0x0010)
R13836 (R0x360C)	p_r_p0q1	dddd dddd dddd dddd	0 (0x0000)
R13838 (R0x360E)	p_r_p0q2	dddd dddd dddd dddd	0 (0x0000)
R13840 (R0x3610)	p_r_p0q3	dddd dddd dddd dddd	0 (0x0000)
R13842 (R0x3612)	p_r_p0q4	dddd dddd dddd dddd	0 (0x0000)
R13844 (R0x3614)	p_b_p0q0	dddd dddd dddd dddd	16 (0x0010)
R13846 (R0x3616)	p_b_p0q1	dddd dddd dddd dddd	0 (0x0000)
R13848 (R0x3618)	p_b_p0q2	dddd dddd dddd dddd	0 (0x0000)
R13850 (R0x361A)	p_b_p0q3	dddd dddd dddd dddd	0 (0x0000)
R13852 (R0x361C)	p_b_p0q4	dddd dddd dddd dddd	0 (0x0000)
R13854 (R0x361E)	p_g2_p0q0	dddd dddd dddd dddd	16 (0x0010)
R13856 (R0x3620)	p_g2_p0q1	dddd dddd dddd dddd	0 (0x0000)
R13858 (R0x3622)	p_g2_p0q2	dddd dddd dddd dddd	0 (0x0000)

Table 5. CPIPE RECONSTRUCT REGISTER LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R13860 (R0x3624)	p_g2_p0q3	dddd dddd dddd dddd	0 (0x0000)
R13862 (R0x3626)	p_g2_p0q4	dddd dddd dddd dddd	0 (0x0000)
R13864 (R0x3628)	p_g1_p1q0	dddd dddd dddd dddd	0 (0x0000)
R13866 (R0x362A)	p_g1_p1q1	dddd dddd dddd dddd	0 (0x0000)
R13868 (R0x362C)	p_g1_p1q2	dddd dddd dddd dddd	0 (0x0000)
R13870 (R0x362E)	p_g1_p1q3	dddd dddd dddd dddd	0 (0x0000)
R13872 (R0x3630)	p_g1_p1q4	dddd dddd dddd dddd	0 (0x0000)
R13874 (R0x3632)	p_r_p1q0	dddd dddd dddd dddd	0 (0x0000)
R13876 (R0x3634)	p_r_p1q1	dddd dddd dddd dddd	0 (0x0000)
R13878 (R0x3636)	p_r_p1q2	dddd dddd dddd dddd	0 (0x0000)
R13880 (R0x3638)	p_r_p1q3	dddd dddd dddd dddd	0 (0x0000)
R13882 (R0x363A)	p_r_p1q4	dddd dddd dddd dddd	0 (0x0000)
R13884 (R0x363C)	p_b_p1q0	dddd dddd dddd dddd	0 (0x0000)
R13886 (R0x363E)	p_b_p1q1	dddd dddd dddd dddd	0 (0x0000)
R13888 (R0x3640)	p_b_p1q2	dddd dddd dddd dddd	0 (0x0000)
R13890 (R0x3642)	p_b_p1q3	dddd dddd dddd dddd	0 (0x0000)
R13892 (R0x3644)	p_b_p1q4	dddd dddd dddd dddd	0 (0x0000)
R13894 (R0x3646)	p_g2_p1q0	dddd dddd dddd dddd	0 (0x0000)
R13896 (R0x3648)	p_g2_p1q1	dddd dddd dddd dddd	0 (0x0000)
R13898 (R0x364A)	p_g2_p1q2	dddd dddd dddd dddd	0 (0x0000)
R13900 (R0x364C)	p_g2_p1q3	dddd dddd dddd dddd	0 (0x0000)
R13902 (R0x364E)	p_g2_p1q4	dddd dddd dddd dddd	0 (0x0000)
R13904 (R0x3650)	p_g1_p2q0	dddd dddd dddd dddd	0 (0x0000)
R13906 (R0x3652)	p_g1_p2q1	dddd dddd dddd dddd	0 (0x0000)
R13908 (R0x3654)	p_g1_p2q2	dddd dddd dddd dddd	0 (0x0000)
R13910 (R0x3656)	p_g1_p2q3	dddd dddd dddd dddd	0 (0x0000)

Table 5. CPIPE RECONSTRUCT REGISTER LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R13912 (R0x3658)	p_g1_p2q4	dddd dddd dddd dddd	0 (0x0000)
R13914 (R0x365A)	p_r_p2q0	dddd dddd dddd dddd	0 (0x0000)
R13916 (R0x365C)	p_r_p2q1	dddd dddd dddd dddd	0 (0x0000)
R13918 (R0x365E)	p_r_p2q2	dddd dddd dddd dddd	0 (0x0000)
R13920 (R0x3660)	p_r_p2q3	dddd dddd dddd dddd	0 (0x0000)
R13922 (R0x3662)	p_r_p2q4	dddd dddd dddd dddd	0 (0x0000)
R13924 (R0x3664)	p_b_p2q0	dddd dddd dddd dddd	0 (0x0000)
R13926 (R0x3666)	p_b_p2q1	dddd dddd dddd dddd	0 (0x0000)
R13928 (R0x3668)	p_b_p2q2	dddd dddd dddd dddd	0 (0x0000)
R13930 (R0x366A)	p_b_p2q3	dddd dddd dddd dddd	0 (0x0000)
R13932 (R0x366C)	p_b_p2q4	dddd dddd dddd dddd	0 (0x0000)
R13934 (R0x366E)	p_g2_p2q0	dddd dddd dddd dddd	0 (0x0000)
R13936 (R0x3670)	p_g2_p2q1	dddd dddd dddd dddd	0 (0x0000)
R13938 (R0x3672)	p_g2_p2q2	dddd dddd dddd dddd	0 (0x0000)
R13940 (R0x3674)	p_g2_p2q3	dddd dddd dddd dddd	0 (0x0000)
R13942 (R0x3676)	p_g2_p2q4	dddd dddd dddd dddd	0 (0x0000)
R13944 (R0x3678)	p_g1_p3q0	dddd dddd dddd dddd	0 (0x0000)
R13946 (R0x367A)	p_g1_p3q1	dddd dddd dddd dddd	0 (0x0000)
R13948 (R0x367C)	p_g1_p3q2	dddd dddd dddd dddd	0 (0x0000)
R13950 (R0x367E)	p_g1_p3q3	dddd dddd dddd dddd	0 (0x0000)
R13952 (R0x3680)	p_g1_p3q4	dddd dddd dddd dddd	0 (0x0000)
R13954 (R0x3682)	p_r_p3q0	dddd dddd dddd dddd	0 (0x0000)
R13956 (R0x3684)	p_r_p3q1	dddd dddd dddd dddd	0 (0x0000)
R13958 (R0x3686)	p_r_p3q2	dddd dddd dddd dddd	0 (0x0000)
R13960 (R0x3688)	p_r_p3q3	dddd dddd dddd dddd	0 (0x0000)
R13962 (R0x368A)	p_r_p3q4	dddd dddd dddd dddd	0 (0x0000)

Table 5. CPIPE RECONSTRUCT REGISTER LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R13964 (R0x368C)	p_b_p3q0	dddd dddd dddd dddd	0 (0x0000)
R13966 (R0x368E)	p_b_p3q1	dddd dddd dddd dddd	0 (0x0000)
R13968 (R0x3690)	p_b_p3q2	dddd dddd dddd dddd	0 (0x0000)
R13970 (R0x3692)	p_b_p3q3	dddd dddd dddd dddd	0 (0x0000)
R13972 (R0x3694)	p_b_p3q4	dddd dddd dddd dddd	0 (0x0000)
R13974 (R0x3696)	p_g2_p3q0	dddd dddd dddd dddd	0 (0x0000)
R13976 (R0x3698)	p_g2_p3q1	dddd dddd dddd dddd	0 (0x0000)
R13978 (R0x369A)	p_g2_p3q2	dddd dddd dddd dddd	0 (0x0000)
R13980 (R0x369C)	p_g2_p3q3	dddd dddd dddd dddd	0 (0x0000)
R13982 (R0x369E)	p_g2_p3q4	dddd dddd dddd dddd	0 (0x0000)
R13984 (R0x36A0)	p_g1_p4q0	dddd dddd dddd dddd	0 (0x0000)
R13986 (R0x36A2)	p_g1_p4q1	dddd dddd dddd dddd	0 (0x0000)
R13988 (R0x36A4)	p_g1_p4q2	dddd dddd dddd dddd	0 (0x0000)
R13990 (R0x36A6)	p_g1_p4q3	dddd dddd dddd dddd	0 (0x0000)
R13992 (R0x36A8)	p_g1_p4q4	dddd dddd dddd dddd	0 (0x0000)
R13994 (R0x36AA)	p_r_p4q0	dddd dddd dddd dddd	0 (0x0000)
R13996 (R0x36AC)	p_r_p4q1	dddd dddd dddd dddd	0 (0x0000)
R13998 (R0x36AE)	p_r_p4q2	dddd dddd dddd dddd	0 (0x0000)
R14000 (R0x36B0)	p_r_p4q3	dddd dddd dddd dddd	0 (0x0000)
R14002 (R0x36B2)	p_r_p4q4	dddd dddd dddd dddd	0 (0x0000)
R14004 (R0x36B4)	p_b_p4q0	dddd dddd dddd dddd	0 (0x0000)
R14006 (R0x36B6)	p_b_p4q1	dddd dddd dddd dddd	0 (0x0000)
R14008 (R0x36B8)	p_b_p4q2	dddd dddd dddd dddd	0 (0x0000)
R14010 (R0x36BA)	p_b_p4q3	dddd dddd dddd dddd	0 (0x0000)
R14012 (R0x36BC)	p_b_p4q4	dddd dddd dddd dddd	0 (0x0000)
R14014 (R0x36BE)	p_g2_p4q0	dddd dddd dddd dddd	0 (0x0000)

Table 5. CPIPE RECONSTRUCT REGISTER LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R14016 (R0x36C0)	p_g2_p4q1	dddd dddd dddd dddd	0 (0x0000)
R14018 (R0x36C2)	p_g2_p4q2	dddd dddd dddd dddd	0 (0x0000)
R14020 (R0x36C4)	p_g2_p4q3	dddd dddd dddd dddd	0 (0x0000)
R14022 (R0x36C6)	p_g2_p4q4	dddd dddd dddd dddd	0 (0x0000)
R14024 (R0x36C8)	center_row	0000 00dd dddd dddd	484 (0x01E4)
R14026 (R0x36CA)	center_column	0000 0ddd dddd dddd	644 (0x0284)

XDMA Register List

Table 6. XDMA REGISTER LIST
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R2434 (R0x0982)	access_ctl_stat	0000 0000 dd0? ???d	0 (0x0000)
R2442 (R0x098A)	physical_address_access	dddd dddd dddd dddd	0 (0x0000)
R2446 (R0x098E)	logical_address_access	dddd dddd dddd dddd	0 (0x0000)
R2448 (R0x0990)	mcu_variable_data0	dddd dddd dddd dddd	0 (0x0000)
R2450 (R0x0992)	mcu_variable_data1	dddd dddd dddd dddd	0 (0x0000)
R2452 (R0x0994)	mcu_variable_data2	dddd dddd dddd dddd	0 (0x0000)
R2454 (R0x0996)	mcu_variable_data3	dddd dddd dddd dddd	0 (0x0000)
R2456 (R0x0998)	mcu_variable_data4	dddd dddd dddd dddd	0 (0x0000)
R2458 (R0x099A)	mcu_variable_data5	dddd dddd dddd dddd	0 (0x0000)
R2460 (R0x099C)	mcu_variable_data6	dddd dddd dddd dddd	0 (0x0000)
R2462 (R0x099E)	mcu_variable_data7	dddd dddd dddd dddd	0 (0x0000)

TX_SS Register List

Table 7. TX_SS REGISTER LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R15364 (R0x3C04)	vdac_ctrl_1	0000 0000 0?dd dddd	0 (0x0000)
R15492 (R0x3C84)	tx_frontporch_backporch	dddd dddd dddd dddd	1542 (0x0606)

OTPM Register List

Table 8. OTPM REGISTER LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
R14336 (R0x3800)	otpm_data_0	dddd dddd dddd dddd	0 (0x0000)
R14338 (R0x3802)	otpm_data_1	dddd dddd dddd dddd	0 (0x0000)
R14340 (R0x3804)	otpm_data_2	dddd dddd dddd dddd	0 (0x0000)
R14342 (R0x3806)	otpm_data_3	dddd dddd dddd dddd	0 (0x0000)
R14344 (R0x3808)	otpm_data_4	dddd dddd dddd dddd	0 (0x0000)
R14346 (R0x380A)	otpm_data_5	dddd dddd dddd dddd	0 (0x0000)
R14348 (R0x380C)	otpm_data_6	dddd dddd dddd dddd	0 (0x0000)
R14350 (R0x380E)	otpm_data_7	dddd dddd dddd dddd	0 (0x0000)
R14592 (R0x3900)	otpm_control	0000 0ddd 0??d 0??d	0 (0x0000)
R14594 (R0x3902)	otpm_record	dddd dddd dddd dddd	512 (0x0200)

Monitor Variables List

Table 9. MONITOR VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0x8000 VAR(0x00,0x0000)	mon_major_version	0000 0000 0000 0001	1 (0x0001)
0x8002 VAR(0x00,0x0002)	mon_minor_version	0000 0000 0000 0011	3 (0x0003)
0x8004 VAR(0x00,0x0004)	mon_release_version	0111 0000 0000 0011	28675 (0x7003)
0x8006 VAR(0x00,0x0006)	mon_heartbeat	???? ???? ???? ????	0 (0x0000)

Table 9. MONITOR VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0x8014 VAR(0x00,0x0014)	mon_watchdog_count	???? ???? ???? ????	0 (0x0000)
0x8016 VAR(0x00,0x0016)	mon_watchdog_status	???? ???? dddd dddd	0 (0x0000)

Sequencer Variables List

Table 10. SEQUENCER VARIABLES LIST
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0x8406 VAR(0x01,0x0006)	seq_error_code	???? ????	0 (0x00)

KeepSync Manager Variables List

Table 11. KEEPSYNC MANAGER VARIABLES LIST
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0x8C01 VAR(0x03,0x0001)	keepsyncmgr_control	dddd dddd	0 (0x00)

NTSC Variables List

Table 12. NTSC VARIABLES LIST
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0x9400 VAR(0x05,0x0000)	ntsc_interlaced_output_format_yuv	dddd d??d ???? ????	28 (0x001C)
0x9403 VAR(0x05,0x0003)	ntsc_interlaced_output_y_offset	dddd dddd	16 (0x10)
0x9404 VAR(0x05,0x0004)	ntsc_aet_flicker_freq_hz	dddd dddd	60 (0x3C)
0x9408 VAR(0x05,0x0008)	ntsc_interlaced_port_parallel_control	dddd ???? ?ddd d??d	130 (0x0082)
0x940A VAR(0x05,0x000A)	ntsc_interlaced_port_composite_control	dddd dddd dddd dddd	1 (0x0001)
0x940C VAR(0x05,0x000C)	ntsc_interlaced_port_composite_burst_cb	dddd dddd dddd dddd	65216 (0xFEC0)
0x940E VAR(0x05,0x000E)	ntsc_interlaced_port_composite_burst_cr	dddd dddd dddd dddd	0 (0x0000)
0x9410 VAR(0x05,0x0010)	ntsc_interlaced_port_composite_sub_phase_offset	dddd dddd dddd dddd	0 (0x0000)
0x9412 VAR(0x05,0x0012)	ntsc_interlaced_port_composite_active_pixels	dddd dddd dddd dddd	710 (0x02C6)
0x9414 VAR(0x05,0x0014)	ntsc_interlaced_port_composite_first_active_pixel	dddd dddd	3 (0x03)

PAL Variables List

Table 13. PAL VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0x9800 VAR(0x06,0x0000)	pal_interlaced_output_format_yuv	dddd d??d ???? ????	28 (0x001C)
0x9803 VAR(0x06,0x0003)	pal_interlaced_output_y_offset	dddd dddd	16 (0x10)
0x9804 VAR(0x06,0x0004)	pal_aet_flicker_freq_hz	dddd dddd	50 (0x32)
0x9808 VAR(0x06,0x0008)	pal_interlaced_port_parallel_control	dddd ???? ?ddd d??d	130 (0x0082)
0x980A VAR(0x06,0x000A)	pal_interlaced_port_composite_control	dddd dddd dddd dddd	1 (0x0001)
0x980C VAR(0x06,0x000C)	pal_interlaced_port_composite_burst_cb	dddd dddd dddd dddd	65297 (0xFF11)
0x980E VAR(0x06,0x000E)	pal_interlaced_port_composite_burst_cr	dddd dddd dddd dddd	170 (0x00AA)
0x9810 VAR(0x06,0x0010)	pal_interlaced_port_composite_sub_phase_offset	dddd dddd dddd dddd	0 (0x0000)
0x9812 VAR(0x06,0x0012)	pal_interlaced_port_composite_active_pixels	dddd dddd dddd dddd	704 (0x02C0)
0x9814 VAR(0x06,0x0014)	pal_interlaced_port_composite_first_active_pixel	dddd dddd	5 (0x05)

AE Rule Variables List

Table 14. AE RULE VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xA404 VAR(0x09,0x0004)	ae_rule_algo	dddd dddd dddd dddd	3 (0x0003)
0xA408 VAR(0x09,0x0008)	ae_rule_avg_log_y_from_stats	???? ???? ???? ????	0 (0x0000)
0xA40A VAR(0x09,0x000A)	ae_rule_ae_weight_table_0_0	dddd dddd	25 (0x19)
0xA40B VAR(0x09,0x000B)	ae_rule_ae_weight_table_0_1	dddd dddd	25 (0x19)
0xA40C VAR(0x09,0x000C)	ae_rule_ae_weight_table_0_2	dddd dddd	25 (0x19)
0xA40D VAR(0x09,0x000D)	ae_rule_ae_weight_table_0_3	dddd dddd	25 (0x19)
0xA40E VAR(0x09,0x000E)	ae_rule_ae_weight_table_0_4	dddd dddd	25 (0x19)
0xA40F VAR(0x09,0x000F)	ae_rule_ae_weight_table_1_0	dddd dddd	25 (0x19)
0xA410 VAR(0x09,0x0010)	ae_rule_ae_weight_table_1_1	dddd dddd	75 (0x4B)
0xA411 VAR(0x09,0x0011)	ae_rule_ae_weight_table_1_2	dddd dddd	75 (0x4B)
0xA412 VAR(0x09,0x0012)	ae_rule_ae_weight_table_1_3	dddd dddd	75 (0x4B)

Table 14. AE RULE VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xA413 VAR(0x09,0x0013)	ae_rule_ae_weight_table_1_4	dddd dddd	25 (0x19)
0xA414 VAR(0x09,0x0014)	ae_rule_ae_weight_table_2_0	dddd dddd	25 (0x19)
0xA415 VAR(0x09,0x0015)	ae_rule_ae_weight_table_2_1	dddd dddd	75 (0x4B)
0xA416 VAR(0x09,0x0016)	ae_rule_ae_weight_table_2_2	dddd dddd	100 (0x64)
0xA417 VAR(0x09,0x0017)	ae_rule_ae_weight_table_2_3	dddd dddd	75 (0x4B)
0xA418 VAR(0x09,0x0018)	ae_rule_ae_weight_table_2_4	dddd dddd	25 (0x19)
0xA419 VAR(0x09,0x0019)	ae_rule_ae_weight_table_3_0	dddd dddd	25 (0x19)
0xA41A VAR(0x09,0x001A)	ae_rule_ae_weight_table_3_1	dddd dddd	75 (0x4B)
0xA41B VAR(0x09,0x001B)	ae_rule_ae_weight_table_3_2	dddd dddd	75 (0x4B)
0xA41C VAR(0x09,0x001C)	ae_rule_ae_weight_table_3_3	dddd dddd	75 (0x4B)
0xA41D VAR(0x09,0x001D)	ae_rule_ae_weight_table_3_4	dddd dddd	25 (0x19)
0xA41E VAR(0x09,0x001E)	ae_rule_ae_weight_table_4_0	dddd dddd	25 (0x19)
0xA41F VAR(0x09,0x001F)	ae_rule_ae_weight_table_4_1	dddd dddd	25 (0x19)
0xA420 VAR(0x09,0x0020)	ae_rule_ae_weight_table_4_2	dddd dddd	25 (0x19)
0xA421 VAR(0x09,0x0021)	ae_rule_ae_weight_table_4_3	dddd dddd	25 (0x19)
0xA422 VAR(0x09,0x0022)	ae_rule_ae_weight_table_4_4	dddd dddd	25 (0x19)

AE Track Variables List

Table 15. AE TRACK VARIABLES LIST
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xA800 VAR(0x0A,0x0000)	ae_track_status	???? ???? ???? ????	0 (0x0000)
0xA802 VAR(0x0A,0x0002)	ae_track_mode	dddd dddd dddd dddd	28 (0x001C)
0xA804 VAR(0x0A,0x0004)	ae_track_algo	dddd dddd dddd dddd	63 (0x003F)
0xA806 VAR(0x0A,0x0006)	ae_track_avg_log_y_target	???? ???? ???? ????	0 (0x0000)
0xA812 VAR(0x0A,0x0012)	ae_track_track_exp_speed	dddd dddd dddd dddd	128 (0x0080)
0xA814 VAR(0x0A,0x0014)	ae_track_adapt_thresh	dddd dddd	4 (0x04)

Table 15. AE TRACK VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xA815 VAR(0x0A,0x0015)	ae_track_damp_max	dddd dddd	3 (0x03)
0xA816 VAR(0x0A,0x0016)	ae_track_damp_slope	dddd dddd	3 (0x03)
0xA817 VAR(0x0A,0x0017)	ae_track_damp_min	dddd dddd	28 (0x1C)
0xA81E VAR(0x0A,0x001E)	ae_track_min_gain_gate	dddd dddd	134 (0x86)
0xA81F VAR(0x0A,0x001F)	ae_track_track_min_gain_speed	dddd dddd	8 (0x08)
0xA82C VAR(0x0A,0x002C)	ae_track_log_y_target_sdr_0	dddd dddd dddd dddd	1984 (0x07C0)
0xA82E VAR(0x0A,0x002E)	ae_track_log_y_target_sdr_1	dddd dddd dddd dddd	2079 (0x081F)
0xA830 VAR(0x0A,0x0030)	ae_track_log_y_target_sdr_2	dddd dddd dddd dddd	2176 (0x0880)
0xA832 VAR(0x0A,0x0032)	ae_track_log_y_target_sdr_3	dddd dddd dddd dddd	2257 (0x08D1)
0xA834 VAR(0x0A,0x0034)	ae_track_log_y_target_sdr_4	dddd dddd dddd dddd	2337 (0x0921)
0xA836 VAR(0x0A,0x0036)	ae_track_log_y_target_sdr_5	dddd dddd dddd dddd	2469 (0x09A5)
0xA838 VAR(0x0A,0x0038)	ae_track_log_y_target_sdr_6	dddd dddd dddd dddd	2512 (0x09D0)
0xA83A VAR(0x0A,0x003A)	ae_track_log_y_target_sdr_7	dddd dddd dddd dddd	2551 (0x09F7)
0xA83C VAR(0x0A,0x003C)	ae_track_log_y_target_hdr_0	dddd dddd dddd dddd	1984 (0x07C0)
0xA83E VAR(0x0A,0x003E)	ae_track_log_y_target_hdr_1	dddd dddd dddd dddd	2079 (0x081F)
0xA840 VAR(0x0A,0x0040)	ae_track_log_y_target_hdr_2	dddd dddd dddd dddd	2176 (0x0880)
0xA842 VAR(0x0A,0x0042)	ae_track_log_y_target_hdr_3	dddd dddd dddd dddd	2257 (0x08D1)
0xA844 VAR(0x0A,0x0044)	ae_track_log_y_target_hdr_4	dddd dddd dddd dddd	2337 (0x0921)
0xA846 VAR(0x0A,0x0046)	ae_track_log_y_target_hdr_5	dddd dddd dddd dddd	2469 (0x09A5)
0xA848 VAR(0x0A,0x0048)	ae_track_log_y_target_hdr_6	dddd dddd dddd dddd	2512 (0x09D0)
0xA84A VAR(0x0A,0x004A)	ae_track_log_y_target_hdr_7	dddd dddd dddd dddd	2551 (0x09F7)

AWB Variables List

Table 16. AWB VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xAC00 VAR(0x0B,0x0000)	awb_status	???? ???? ???? ????	0 (0x0000)
0xAC02 VAR(0x0B,0x0002)	awb_mode	dddd dddd dddd dddd	456 (0x01C8)
0xAC06 VAR(0x0B,0x0006)	awb_r_ratio_lower	dddd dddd	99 (0x63)
0xAC07 VAR(0x0B,0x0007)	awb_r_ratio_upper	dddd dddd	101 (0x65)
0xAC08 VAR(0x0B,0x0008)	awb_b_ratio_lower	dddd dddd	99 (0x63)
0xAC09 VAR(0x0B,0x0009)	awb_b_ratio_upper	dddd dddd	101 (0x65)
0xAC0A VAR(0x0B,0x000A)	awb_r_scene_ratio_lower	dddd dddd	25 (0x19)
0xAC0B VAR(0x0B,0x000B)	awb_r_scene_ratio_upper	dddd dddd	255 (0xFF)
0xAC0C VAR(0x0B,0x000C)	awb_b_scene_ratio_lower	dddd dddd	25 (0x19)
0xAC0D VAR(0x0B,0x000D)	awb_b_scene_ratio_upper	dddd dddd	255 (0xFF)
0xAC0E VAR(0x0B,0x000E)	awb_r_ratio_pre_awb	???? ????	100 (0x64)
0xAC0F VAR(0x0B,0x000F)	awb_b_ratio_pre_awb	???? ????	100 (0x64)
0xAC10 VAR(0x0B,0x0010)	awb_r_ratio_post_awb	???? ????	100 (0x64)
0xAC11 VAR(0x0B,0x0011)	awb_b_ratio_post_awb	???? ????	100 (0x64)
0xAC12 VAR(0x0B,0x0012)	awb_r_gain	???? ???? ???? ????	128 (0x0080)
0xAC14 VAR(0x0B,0x0014)	awb_b_gain	???? ???? ???? ????	128 (0x0080)
0xAC16 VAR(0x0B,0x0016)	awb_pre_awb_ratios_tracking_speed	dddd dddd	10 (0x0A)
0xAC24 VAR(0x0B,0x0024)	awb_ir_control_brightness_th	dddd dddd dddd dddd	2304 (0x0900)
0xAC28 VAR(0x0B,0x0028)	awb_ir_control_threshold_1	dddd dddd dddd dddd	205 (0x00CD)
0xAC2A VAR(0x0B,0x002A)	awb_ir_control_threshold_1_gate	dddd dddd dddd dddd	4 (0x0004)
0xAC2C VAR(0x0B,0x002C)	awb_ir_control_slope_k1	dddd dddd dddd dddd	65344 (0xFF40)
0xAC2E VAR(0x0B,0x002E)	awb_ir_control_threshold_2	dddd dddd dddd dddd	13 (0x000D)
0xAC30 VAR(0x0B,0x0030)	awb_ir_control_threshold_2_gate	dddd dddd dddd dddd	4 (0x0004)
0xAC32 VAR(0x0B,0x0032)	awb_ir_control_slope_k2	dddd dddd dddd dddd	164 (0x00A4)

Blacklevel Variables List

Table 17. BLACKLEVEL VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB004 VAR(0x0C,0x0004)	blacklevel_algo	dddd dddd dddd dddd	4 (0x0004)
0xB00C VAR(0x0C,0x000C)	blacklevel_max_black_level	dddd dddd	128 (0x80)
0xB00D VAR(0x0C,0x000D)	blacklevel_black_level_damping	dddd dddd	6 (0x06)

CCM Variables List

Table 18. CCM VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB402 VAR(0x0D,0x0002)	ccm_mode	dddd dddd dddd dddd	0 (0x0000)
0xB404 VAR(0x0D,0x0004)	ccm_algo	dddd dddd dddd dddd	48 (0x0030)
0xB406 VAR(0x0D,0x0006)	ccm_0	???? ???? ???? ????	0 (0x0000)
0xB408 VAR(0x0D,0x0008)	ccm_1	???? ???? ???? ????	0 (0x0000)
0xB40A VAR(0x0D,0x000A)	ccm_2	???? ???? ???? ????	0 (0x0000)
0xB40C VAR(0x0D,0x000C)	ccm_3	???? ???? ???? ????	0 (0x0000)
0xB40E VAR(0x0D,0x000E)	ccm_4	???? ???? ???? ????	0 (0x0000)
0xB410 VAR(0x0D,0x0010)	ccm_5	???? ???? ???? ????	0 (0x0000)
0xB412 VAR(0x0D,0x0012)	ccm_6	???? ???? ???? ????	0 (0x0000)
0xB414 VAR(0x0D,0x0014)	ccm_7	???? ???? ???? ????	0 (0x0000)
0xB416 VAR(0x0D,0x0016)	ccm_8	???? ???? ???? ????	0 (0x0000)

Stat Variables List

Table 19. STAT VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB804 VAR(0x0E,0x0004)	stat_average_luma	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB808 VAR(0x0E,0x0008)	stat_log_average_luma	???? ???? ???? ????	0 (0x0000)
0xB80A VAR(0x0E,0x000A)	stat_average_logy	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB80C VAR(0x0E,0x000C)	stat_altm_l_min	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB810 VAR(0x0E,0x0010)	stat_altm_l_max	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB814 VAR(0x0E,0x0014)	stat_awb_pixels_in_stat	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB818 VAR(0x0E,0x0018)	stat_awb_norm_sum_weighted_red	???? ???? ???? ????	0 (0x0000)
0xB81A VAR(0x0E,0x001A)	stat_awb_norm_sum_weighted_green	???? ???? ???? ????	0 (0x0000)
0xB81C VAR(0x0E,0x001C)	stat_awb_norm_sum_weighted_blue	???? ???? ???? ????	0 (0x0000)
0xB820 VAR(0x0E,0x0020)	stat_clip_total_pixels_win	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB824 VAR(0x0E,0x0024)	stat_clip_num_lowlights	???? ???? ???? ????	0 (0x0000)
0xB850 VAR(0x0E,0x0050)	stat_ae_zone_size_cells	???? ???? ???? ????	0 (0x0000)
0xB852 VAR(0x0E,0x0052)	stat_ae_histogram_size	???? ???? ???? ????	0 (0x0000)
0xB854 VAR(0x0E,0x0054)	stat_ae_zone_avgluma_0_0	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB858 VAR(0x0E,0x0058)	stat_ae_zone_avgluma_0_1	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB85C VAR(0x0E,0x005C)	stat_ae_zone_avgluma_0_2	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB860 VAR(0x0E,0x0060)	stat_ae_zone_avgluma_0_3	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB864 VAR(0x0E,0x0064)	stat_ae_zone_avgluma_0_4	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB868 VAR(0x0E,0x0068)	stat_ae_zone_avgluma_1_0	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB86C VAR(0x0E,0x006C)	stat_ae_zone_avgluma_1_1	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB870 VAR(0x0E,0x0070)	stat_ae_zone_avgluma_1_2	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB874 VAR(0x0E,0x0074)	stat_ae_zone_avgluma_1_3	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB878 VAR(0x0E,0x0078)	stat_ae_zone_avgluma_1_4	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB87C VAR(0x0E,0x007C)	stat_ae_zone_avgluma_2_0	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB880 VAR(0x0E,0x0080)	stat_ae_zone_avgluma_2_1	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB884 VAR(0x0E,0x0084)	stat_ae_zone_avgluma_2_2	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB888 VAR(0x0E,0x0088)	stat_ae_zone_avgluma_2_3	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB88C VAR(0x0E,0x008C)	stat_ae_zone_avgluma_2_4	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB890 VAR(0x0E,0x0090)	stat_ae_zone_avgluma_3_0	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB894 VAR(0x0E,0x0094)	stat_ae_zone_avgluma_3_1	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB898 VAR(0x0E,0x0098)	stat_ae_zone_avgluma_3_2	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB89C VAR(0x0E,0x009C)	stat_ae_zone_avgluma_3_3	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB8A0 VAR(0x0E,0x00A0)	stat_ae_zone_avgluma_3_4	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB8A4 VAR(0x0E,0x00A4)	stat_ae_zone_avgluma_4_0	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB8A8 VAR(0x0E,0x00A8)	stat_ae_zone_avgluma_4_1	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB8AC VAR(0x0E,0x00AC)	stat_ae_zone_avgluma_4_2	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB8B0 VAR(0x0E,0x00B0)	stat_ae_zone_avgluma_4_3	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB8B4 VAR(0x0E,0x00B4)	stat_ae_zone_avgluma_4_4	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xB8B8 VAR(0x0E,0x00B8)	stat_ae_zone_avglogy_0_0	???? ???? ???? ????	0 (0x0000)
0xB8BA VAR(0x0E,0x00BA)	stat_ae_zone_avglogy_0_1	???? ???? ???? ????	0 (0x0000)
0xB8BC VAR(0x0E,0x00BC)	stat_ae_zone_avglogy_0_2	???? ???? ???? ????	0 (0x0000)
0xB8BE VAR(0x0E,0x00BE)	stat_ae_zone_avglogy_0_3	???? ???? ???? ????	0 (0x0000)
0xB8C0 VAR(0x0E,0x00C0)	stat_ae_zone_avglogy_0_4	???? ???? ???? ????	0 (0x0000)
0xB8C2 VAR(0x0E,0x00C2)	stat_ae_zone_avglogy_1_0	???? ???? ???? ????	0 (0x0000)
0xB8C4 VAR(0x0E,0x00C4)	stat_ae_zone_avglogy_1_1	???? ???? ???? ????	0 (0x0000)
0xB8C6 VAR(0x0E,0x00C6)	stat_ae_zone_avglogy_1_2	???? ???? ???? ????	0 (0x0000)
0xB8C8 VAR(0x0E,0x00C8)	stat_ae_zone_avglogy_1_3	???? ???? ???? ????	0 (0x0000)
0xB8CA VAR(0x0E,0x00CA)	stat_ae_zone_avglogy_1_4	???? ???? ???? ????	0 (0x0000)
0xB8CC VAR(0x0E,0x00CC)	stat_ae_zone_avglogy_2_0	???? ???? ???? ????	0 (0x0000)
0xB8CE VAR(0x0E,0x00CE)	stat_ae_zone_avglogy_2_1	???? ???? ???? ????	0 (0x0000)
0xB8D0 VAR(0x0E,0x00D0)	stat_ae_zone_avglogy_2_2	???? ???? ???? ????	0 (0x0000)
0xB8D2 VAR(0x0E,0x00D2)	stat_ae_zone_avglogy_2_3	???? ???? ???? ????	0 (0x0000)
0xB8D4 VAR(0x0E,0x00D4)	stat_ae_zone_avglogy_2_4	???? ???? ???? ????	0 (0x0000)
0xB8D6 VAR(0x0E,0x00D6)	stat_ae_zone_avglogy_3_0	???? ???? ???? ????	0 (0x0000)
0xB8D8 VAR(0x0E,0x00D8)	stat_ae_zone_avglogy_3_1	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB8DA VAR(0x0E,0x00DA)	stat_ae_zone_avglogy_3_2	???? ???? ???? ????	0 (0x0000)
0xB8DC VAR(0x0E,0x00DC)	stat_ae_zone_avglogy_3_3	???? ???? ???? ????	0 (0x0000)
0xB8DE VAR(0x0E,0x00DE)	stat_ae_zone_avglogy_3_4	???? ???? ???? ????	0 (0x0000)
0xB8E0 VAR(0x0E,0x00E0)	stat_ae_zone_avglogy_4_0	???? ???? ???? ????	0 (0x0000)
0xB8E2 VAR(0x0E,0x00E2)	stat_ae_zone_avglogy_4_1	???? ???? ???? ????	0 (0x0000)
0xB8E4 VAR(0x0E,0x00E4)	stat_ae_zone_avglogy_4_2	???? ???? ???? ????	0 (0x0000)
0xB8E6 VAR(0x0E,0x00E6)	stat_ae_zone_avglogy_4_3	???? ???? ???? ????	0 (0x0000)
0xB8E8 VAR(0x0E,0x00E8)	stat_ae_zone_avglogy_4_4	???? ???? ???? ????	0 (0x0000)
0xB91C VAR(0x0E,0x011C)	stat_ae_histogram_0	???? ???? ???? ????	0 (0x0000)
0xB91E VAR(0x0E,0x011E)	stat_ae_histogram_1	???? ???? ???? ????	0 (0x0000)
0xB920 VAR(0x0E,0x0120)	stat_ae_histogram_2	???? ???? ???? ????	0 (0x0000)
0xB922 VAR(0x0E,0x0122)	stat_ae_histogram_3	???? ???? ???? ????	0 (0x0000)
0xB924 VAR(0x0E,0x0124)	stat_ae_histogram_4	???? ???? ???? ????	0 (0x0000)
0xB926 VAR(0x0E,0x0126)	stat_ae_histogram_5	???? ???? ???? ????	0 (0x0000)
0xB928 VAR(0x0E,0x0128)	stat_ae_histogram_6	???? ???? ???? ????	0 (0x0000)
0xB92A VAR(0x0E,0x012A)	stat_ae_histogram_7	???? ???? ???? ????	0 (0x0000)
0xB92C VAR(0x0E,0x012C)	stat_ae_histogram_8	???? ???? ???? ????	0 (0x0000)
0xB92E VAR(0x0E,0x012E)	stat_ae_histogram_9	???? ???? ???? ????	0 (0x0000)
0xB930 VAR(0x0E,0x0130)	stat_ae_histogram_10	???? ???? ???? ????	0 (0x0000)
0xB932 VAR(0x0E,0x0132)	stat_ae_histogram_11	???? ???? ???? ????	0 (0x0000)
0xB934 VAR(0x0E,0x0134)	stat_ae_histogram_12	???? ???? ???? ????	0 (0x0000)
0xB936 VAR(0x0E,0x0136)	stat_ae_histogram_13	???? ???? ???? ????	0 (0x0000)
0xB938 VAR(0x0E,0x0138)	stat_ae_histogram_14	???? ???? ???? ????	0 (0x0000)
0xB93A VAR(0x0E,0x013A)	stat_ae_histogram_15	???? ???? ???? ????	0 (0x0000)
0xB93C VAR(0x0E,0x013C)	stat_ae_histogram_16	???? ???? ???? ????	0 (0x0000)
0xB93E VAR(0x0E,0x013E)	stat_ae_histogram_17	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB940 VAR(0x0E,0x0140)	stat_ae_histogram_18	???? ???? ???? ????	0 (0x0000)
0xB942 VAR(0x0E,0x0142)	stat_ae_histogram_19	???? ???? ???? ????	0 (0x0000)
0xB944 VAR(0x0E,0x0144)	stat_ae_histogram_20	???? ???? ???? ????	0 (0x0000)
0xB946 VAR(0x0E,0x0146)	stat_ae_histogram_21	???? ???? ???? ????	0 (0x0000)
0xB948 VAR(0x0E,0x0148)	stat_ae_histogram_22	???? ???? ???? ????	0 (0x0000)
0xB94A VAR(0x0E,0x014A)	stat_ae_histogram_23	???? ???? ???? ????	0 (0x0000)
0xB94C VAR(0x0E,0x014C)	stat_ae_histogram_24	???? ???? ???? ????	0 (0x0000)
0xB94E VAR(0x0E,0x014E)	stat_ae_histogram_25	???? ???? ???? ????	0 (0x0000)
0xB950 VAR(0x0E,0x0150)	stat_ae_histogram_26	???? ???? ???? ????	0 (0x0000)
0xB952 VAR(0x0E,0x0152)	stat_ae_histogram_27	???? ???? ???? ????	0 (0x0000)
0xB954 VAR(0x0E,0x0154)	stat_ae_histogram_28	???? ???? ???? ????	0 (0x0000)
0xB956 VAR(0x0E,0x0156)	stat_ae_histogram_29	???? ???? ???? ????	0 (0x0000)
0xB958 VAR(0x0E,0x0158)	stat_ae_histogram_30	???? ???? ???? ????	0 (0x0000)
0xB95A VAR(0x0E,0x015A)	stat_ae_histogram_31	???? ???? ???? ????	0 (0x0000)
0xB95C VAR(0x0E,0x015C)	stat_ae_histogram_32	???? ???? ???? ????	0 (0x0000)
0xB95E VAR(0x0E,0x015E)	stat_ae_histogram_33	???? ???? ???? ????	0 (0x0000)
0xB960 VAR(0x0E,0x0160)	stat_ae_histogram_34	???? ???? ???? ????	0 (0x0000)
0xB962 VAR(0x0E,0x0162)	stat_ae_histogram_35	???? ???? ???? ????	0 (0x0000)
0xB964 VAR(0x0E,0x0164)	stat_ae_histogram_36	???? ???? ???? ????	0 (0x0000)
0xB966 VAR(0x0E,0x0166)	stat_ae_histogram_37	???? ???? ???? ????	0 (0x0000)
0xB968 VAR(0x0E,0x0168)	stat_ae_histogram_38	???? ???? ???? ????	0 (0x0000)
0xB96A VAR(0x0E,0x016A)	stat_ae_histogram_39	???? ???? ???? ????	0 (0x0000)
0xB96C VAR(0x0E,0x016C)	stat_ae_histogram_40	???? ???? ???? ????	0 (0x0000)
0xB96E VAR(0x0E,0x016E)	stat_ae_histogram_41	???? ???? ???? ????	0 (0x0000)
0xB970 VAR(0x0E,0x0170)	stat_ae_histogram_42	???? ???? ???? ????	0 (0x0000)
0xB972 VAR(0x0E,0x0172)	stat_ae_histogram_43	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB974 VAR(0x0E,0x0174)	stat_ae_histogram_44	???? ???? ???? ????	0 (0x0000)
0xB976 VAR(0x0E,0x0176)	stat_ae_histogram_45	???? ???? ???? ????	0 (0x0000)
0xB978 VAR(0x0E,0x0178)	stat_ae_histogram_46	???? ???? ???? ????	0 (0x0000)
0xB97A VAR(0x0E,0x017A)	stat_ae_histogram_47	???? ???? ???? ????	0 (0x0000)
0xB97C VAR(0x0E,0x017C)	stat_ae_histogram_48	???? ???? ???? ????	0 (0x0000)
0xB97E VAR(0x0E,0x017E)	stat_ae_histogram_49	???? ???? ???? ????	0 (0x0000)
0xB980 VAR(0x0E,0x0180)	stat_ae_histogram_50	???? ???? ???? ????	0 (0x0000)
0xB982 VAR(0x0E,0x0182)	stat_ae_histogram_51	???? ???? ???? ????	0 (0x0000)
0xB984 VAR(0x0E,0x0184)	stat_ae_histogram_52	???? ???? ???? ????	0 (0x0000)
0xB986 VAR(0x0E,0x0186)	stat_ae_histogram_53	???? ???? ???? ????	0 (0x0000)
0xB988 VAR(0x0E,0x0188)	stat_ae_histogram_54	???? ???? ???? ????	0 (0x0000)
0xB98A VAR(0x0E,0x018A)	stat_ae_histogram_55	???? ???? ???? ????	0 (0x0000)
0xB98C VAR(0x0E,0x018C)	stat_ae_histogram_56	???? ???? ???? ????	0 (0x0000)
0xB98E VAR(0x0E,0x018E)	stat_ae_histogram_57	???? ???? ???? ????	0 (0x0000)
0xB990 VAR(0x0E,0x0190)	stat_ae_histogram_58	???? ???? ???? ????	0 (0x0000)
0xB992 VAR(0x0E,0x0192)	stat_ae_histogram_59	???? ???? ???? ????	0 (0x0000)
0xB994 VAR(0x0E,0x0194)	stat_ae_histogram_60	???? ???? ???? ????	0 (0x0000)
0xB996 VAR(0x0E,0x0196)	stat_ae_histogram_61	???? ???? ???? ????	0 (0x0000)
0xB998 VAR(0x0E,0x0198)	stat_ae_histogram_62	???? ???? ???? ????	0 (0x0000)
0xB99A VAR(0x0E,0x019A)	stat_ae_histogram_63	???? ???? ???? ????	0 (0x0000)
0xB99C VAR(0x0E,0x019C)	stat_ae_histogram_64	???? ???? ???? ????	0 (0x0000)
0xB99E VAR(0x0E,0x019E)	stat_ae_histogram_65	???? ???? ???? ????	0 (0x0000)
0xB9A0 VAR(0x0E,0x01A0)	stat_ae_histogram_66	???? ???? ???? ????	0 (0x0000)
0xB9A2 VAR(0x0E,0x01A2)	stat_ae_histogram_67	???? ???? ???? ????	0 (0x0000)
0xB9A4 VAR(0x0E,0x01A4)	stat_ae_histogram_68	???? ???? ???? ????	0 (0x0000)
0xB9A6 VAR(0x0E,0x01A6)	stat_ae_histogram_69	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB9A8 VAR(0x0E,0x01A8)	stat_ae_histogram_70	???? ???? ???? ????	0 (0x0000)
0xB9AA VAR(0x0E,0x01AA)	stat_ae_histogram_71	???? ???? ???? ????	0 (0x0000)
0xB9AC VAR(0x0E,0x01AC)	stat_ae_histogram_72	???? ???? ???? ????	0 (0x0000)
0xB9AE VAR(0x0E,0x01AE)	stat_ae_histogram_73	???? ???? ???? ????	0 (0x0000)
0xB9B0 VAR(0x0E,0x01B0)	stat_ae_histogram_74	???? ???? ???? ????	0 (0x0000)
0xB9B2 VAR(0x0E,0x01B2)	stat_ae_histogram_75	???? ???? ???? ????	0 (0x0000)
0xB9B4 VAR(0x0E,0x01B4)	stat_ae_histogram_76	???? ???? ???? ????	0 (0x0000)
0xB9B6 VAR(0x0E,0x01B6)	stat_ae_histogram_77	???? ???? ???? ????	0 (0x0000)
0xB9B8 VAR(0x0E,0x01B8)	stat_ae_histogram_78	???? ???? ???? ????	0 (0x0000)
0xB9BA VAR(0x0E,0x01BA)	stat_ae_histogram_79	???? ???? ???? ????	0 (0x0000)
0xB9BC VAR(0x0E,0x01BC)	stat_ae_histogram_80	???? ???? ???? ????	0 (0x0000)
0xB9BE VAR(0x0E,0x01BE)	stat_ae_histogram_81	???? ???? ???? ????	0 (0x0000)
0xB9C0 VAR(0x0E,0x01C0)	stat_ae_histogram_82	???? ???? ???? ????	0 (0x0000)
0xB9C2 VAR(0x0E,0x01C2)	stat_ae_histogram_83	???? ???? ???? ????	0 (0x0000)
0xB9C4 VAR(0x0E,0x01C4)	stat_ae_histogram_84	???? ???? ???? ????	0 (0x0000)
0xB9C6 VAR(0x0E,0x01C6)	stat_ae_histogram_85	???? ???? ???? ????	0 (0x0000)
0xB9C8 VAR(0x0E,0x01C8)	stat_ae_histogram_86	???? ???? ???? ????	0 (0x0000)
0xB9CA VAR(0x0E,0x01CA)	stat_ae_histogram_87	???? ???? ???? ????	0 (0x0000)
0xB9CC VAR(0x0E,0x01CC)	stat_ae_histogram_88	???? ???? ???? ????	0 (0x0000)
0xB9CE VAR(0x0E,0x01CE)	stat_ae_histogram_89	???? ???? ???? ????	0 (0x0000)
0xB9D0 VAR(0x0E,0x01D0)	stat_ae_histogram_90	???? ???? ???? ????	0 (0x0000)
0xB9D2 VAR(0x0E,0x01D2)	stat_ae_histogram_91	???? ???? ???? ????	0 (0x0000)
0xB9D4 VAR(0x0E,0x01D4)	stat_ae_histogram_92	???? ???? ???? ????	0 (0x0000)
0xB9D6 VAR(0x0E,0x01D6)	stat_ae_histogram_93	???? ???? ???? ????	0 (0x0000)
0xB9D8 VAR(0x0E,0x01D8)	stat_ae_histogram_94	???? ???? ???? ????	0 (0x0000)
0xB9DA VAR(0x0E,0x01DA)	stat_ae_histogram_95	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xB9DC VAR(0x0E,0x01DC)	stat_ae_histogram_96	???? ???? ???? ????	0 (0x0000)
0xB9DE VAR(0x0E,0x01DE)	stat_ae_histogram_97	???? ???? ???? ????	0 (0x0000)
0xB9E0 VAR(0x0E,0x01E0)	stat_ae_histogram_98	???? ???? ???? ????	0 (0x0000)
0xB9E2 VAR(0x0E,0x01E2)	stat_ae_histogram_99	???? ???? ???? ????	0 (0x0000)
0xB9E4 VAR(0x0E,0x01E4)	stat_ae_histogram_100	???? ???? ???? ????	0 (0x0000)
0xB9E6 VAR(0x0E,0x01E6)	stat_ae_histogram_101	???? ???? ???? ????	0 (0x0000)
0xB9E8 VAR(0x0E,0x01E8)	stat_ae_histogram_102	???? ???? ???? ????	0 (0x0000)
0xB9EA VAR(0x0E,0x01EA)	stat_ae_histogram_103	???? ???? ???? ????	0 (0x0000)
0xB9EC VAR(0x0E,0x01EC)	stat_ae_histogram_104	???? ???? ???? ????	0 (0x0000)
0xB9EE VAR(0x0E,0x01EE)	stat_ae_histogram_105	???? ???? ???? ????	0 (0x0000)
0xB9F0 VAR(0x0E,0x01F0)	stat_ae_histogram_106	???? ???? ???? ????	0 (0x0000)
0xB9F2 VAR(0x0E,0x01F2)	stat_ae_histogram_107	???? ???? ???? ????	0 (0x0000)
0xB9F4 VAR(0x0E,0x01F4)	stat_ae_histogram_108	???? ???? ???? ????	0 (0x0000)
0xB9F6 VAR(0x0E,0x01F6)	stat_ae_histogram_109	???? ???? ???? ????	0 (0x0000)
0xB9F8 VAR(0x0E,0x01F8)	stat_ae_histogram_110	???? ???? ???? ????	0 (0x0000)
0xB9FA VAR(0x0E,0x01FA)	stat_ae_histogram_111	???? ???? ???? ????	0 (0x0000)
0xB9FC VAR(0x0E,0x01FC)	stat_ae_histogram_112	???? ???? ???? ????	0 (0x0000)
0xB9FE VAR(0x0E,0x01FE)	stat_ae_histogram_113	???? ???? ???? ????	0 (0x0000)
0xBA00 VAR(0x0E,0x0200)	stat_ae_histogram_114	???? ???? ???? ????	0 (0x0000)
0xBA02 VAR(0x0E,0x0202)	stat_ae_histogram_115	???? ???? ???? ????	0 (0x0000)
0xBA04 VAR(0x0E,0x0204)	stat_ae_histogram_116	???? ???? ???? ????	0 (0x0000)
0xBA06 VAR(0x0E,0x0206)	stat_ae_histogram_117	???? ???? ???? ????	0 (0x0000)
0xBA08 VAR(0x0E,0x0208)	stat_ae_histogram_118	???? ???? ???? ????	0 (0x0000)
0xBA0A VAR(0x0E,0x020A)	stat_ae_histogram_119	???? ???? ???? ????	0 (0x0000)
0xBA0C VAR(0x0E,0x020C)	stat_ae_histogram_120	???? ???? ???? ????	0 (0x0000)
0xBA0E VAR(0x0E,0x020E)	stat_ae_histogram_121	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xBA10 VAR(0x0E,0x0210)	stat_ae_histogram_122	???? ???? ???? ????	0 (0x0000)
0xBA12 VAR(0x0E,0x0212)	stat_ae_histogram_123	???? ???? ???? ????	0 (0x0000)
0xBA14 VAR(0x0E,0x0214)	stat_ae_histogram_124	???? ???? ???? ????	0 (0x0000)
0xBA16 VAR(0x0E,0x0216)	stat_ae_histogram_125	???? ???? ???? ????	0 (0x0000)
0xBA18 VAR(0x0E,0x0218)	stat_ae_histogram_126	???? ???? ???? ????	0 (0x0000)
0xBA1A VAR(0x0E,0x021A)	stat_ae_histogram_127	???? ???? ???? ????	0 (0x0000)
0xBA1C VAR(0x0E,0x021C)	stat_ae_histogram_128	???? ???? ???? ????	0 (0x0000)
0xBA1E VAR(0x0E,0x021E)	stat_ae_histogram_129	???? ???? ???? ????	0 (0x0000)
0xBA20 VAR(0x0E,0x0220)	stat_ae_histogram_130	???? ???? ???? ????	0 (0x0000)
0xBA22 VAR(0x0E,0x0222)	stat_ae_histogram_131	???? ???? ???? ????	0 (0x0000)
0xBA24 VAR(0x0E,0x0224)	stat_ae_histogram_132	???? ???? ???? ????	0 (0x0000)
0xBA26 VAR(0x0E,0x0226)	stat_ae_histogram_133	???? ???? ???? ????	0 (0x0000)
0xBA28 VAR(0x0E,0x0228)	stat_ae_histogram_134	???? ???? ???? ????	0 (0x0000)
0xBA2A VAR(0x0E,0x022A)	stat_ae_histogram_135	???? ???? ???? ????	0 (0x0000)
0xBA2C VAR(0x0E,0x022C)	stat_ae_histogram_136	???? ???? ???? ????	0 (0x0000)
0xBA2E VAR(0x0E,0x022E)	stat_ae_histogram_137	???? ???? ???? ????	0 (0x0000)
0xBA30 VAR(0x0E,0x0230)	stat_ae_histogram_138	???? ???? ???? ????	0 (0x0000)
0xBA32 VAR(0x0E,0x0232)	stat_ae_histogram_139	???? ???? ???? ????	0 (0x0000)
0xBA34 VAR(0x0E,0x0234)	stat_ae_histogram_140	???? ???? ???? ????	0 (0x0000)
0xBA36 VAR(0x0E,0x0236)	stat_ae_histogram_141	???? ???? ???? ????	0 (0x0000)
0xBA38 VAR(0x0E,0x0238)	stat_ae_histogram_142	???? ???? ???? ????	0 (0x0000)
0xBA3A VAR(0x0E,0x023A)	stat_ae_histogram_143	???? ???? ???? ????	0 (0x0000)
0xBA3C VAR(0x0E,0x023C)	stat_ae_histogram_144	???? ???? ???? ????	0 (0x0000)
0xBA3E VAR(0x0E,0x023E)	stat_ae_histogram_145	???? ???? ???? ????	0 (0x0000)
0xBA40 VAR(0x0E,0x0240)	stat_ae_histogram_146	???? ???? ???? ????	0 (0x0000)
0xBA42 VAR(0x0E,0x0242)	stat_ae_histogram_147	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xBA44 VAR(0x0E,0x0244)	stat_ae_histogram_148	???? ???? ???? ????	0 (0x0000)
0xBA46 VAR(0x0E,0x0246)	stat_ae_histogram_149	???? ???? ???? ????	0 (0x0000)
0xBA48 VAR(0x0E,0x0248)	stat_ae_histogram_150	???? ???? ???? ????	0 (0x0000)
0xBA4A VAR(0x0E,0x024A)	stat_ae_histogram_151	???? ???? ???? ????	0 (0x0000)
0xBA4C VAR(0x0E,0x024C)	stat_ae_histogram_152	???? ???? ???? ????	0 (0x0000)
0xBA4E VAR(0x0E,0x024E)	stat_ae_histogram_153	???? ???? ???? ????	0 (0x0000)
0xBA50 VAR(0x0E,0x0250)	stat_ae_histogram_154	???? ???? ???? ????	0 (0x0000)
0xBA52 VAR(0x0E,0x0252)	stat_ae_histogram_155	???? ???? ???? ????	0 (0x0000)
0xBA54 VAR(0x0E,0x0254)	stat_ae_histogram_156	???? ???? ???? ????	0 (0x0000)
0xBA56 VAR(0x0E,0x0256)	stat_ae_histogram_157	???? ???? ???? ????	0 (0x0000)
0xBA58 VAR(0x0E,0x0258)	stat_ae_histogram_158	???? ???? ???? ????	0 (0x0000)
0xBA5A VAR(0x0E,0x025A)	stat_ae_histogram_159	???? ???? ???? ????	0 (0x0000)
0xBA7A VAR(0x0E,0x027A)	stat_ae_histogram_175	???? ???? ???? ????	0 (0x0000)
0xBA7C VAR(0x0E,0x027C)	stat_ae_histogram_176	???? ???? ???? ????	0 (0x0000)
0xBA7E VAR(0x0E,0x027E)	stat_ae_histogram_177	???? ???? ???? ????	0 (0x0000)
0xBA80 VAR(0x0E,0x0280)	stat_ae_histogram_178	???? ???? ???? ????	0 (0x0000)
0xBA82 VAR(0x0E,0x0282)	stat_ae_histogram_179	???? ???? ???? ????	0 (0x0000)
0xBA84 VAR(0x0E,0x0284)	stat_ae_histogram_180	???? ???? ???? ????	0 (0x0000)
0xBA86 VAR(0x0E,0x0286)	stat_ae_histogram_181	???? ???? ???? ????	0 (0x0000)
0xBA88 VAR(0x0E,0x0288)	stat_ae_histogram_182	???? ???? ???? ????	0 (0x0000)
0xBA8A VAR(0x0E,0x028A)	stat_ae_histogram_183	???? ???? ???? ????	0 (0x0000)
0xBA8C VAR(0x0E,0x028C)	stat_ae_histogram_184	???? ???? ???? ????	0 (0x0000)
0xBA8E VAR(0x0E,0x028E)	stat_ae_histogram_185	???? ???? ???? ????	0 (0x0000)
0xBA90 VAR(0x0E,0x0290)	stat_ae_histogram_186	???? ???? ???? ????	0 (0x0000)
0xBA92 VAR(0x0E,0x0292)	stat_ae_histogram_187	???? ???? ???? ????	0 (0x0000)
0xBA94 VAR(0x0E,0x0294)	stat_ae_histogram_188	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xBA96 VAR(0x0E,0x0296)	stat_ae_histogram_189	???? ???? ???? ????	0 (0x0000)
0xBA98 VAR(0x0E,0x0298)	stat_ae_histogram_190	???? ???? ???? ????	0 (0x0000)
0xBA9A VAR(0x0E,0x029A)	stat_ae_histogram_191	???? ???? ???? ????	0 (0x0000)
0xBA9C VAR(0x0E,0x029C)	stat_ae_histogram_192	???? ???? ???? ????	0 (0x0000)
0xBA9E VAR(0x0E,0x029E)	stat_ae_histogram_193	???? ???? ???? ????	0 (0x0000)
0xBAA0 VAR(0x0E,0x02A0)	stat_ae_histogram_194	???? ???? ???? ????	0 (0x0000)
0xBAA2 VAR(0x0E,0x02A2)	stat_ae_histogram_195	???? ???? ???? ????	0 (0x0000)
0xBAA4 VAR(0x0E,0x02A4)	stat_ae_histogram_196	???? ???? ???? ????	0 (0x0000)
0xBAA6 VAR(0x0E,0x02A6)	stat_ae_histogram_197	???? ???? ???? ????	0 (0x0000)
0xBAA8 VAR(0x0E,0x02A8)	stat_ae_histogram_198	???? ???? ???? ????	0 (0x0000)
0xBAAA VAR(0x0E,0x02AA)	stat_ae_histogram_199	???? ???? ???? ????	0 (0x0000)
0xBAAC VAR(0x0E,0x02AC)	stat_ae_histogram_200	???? ???? ???? ????	0 (0x0000)
0xBAAE VAR(0x0E,0x02AE)	stat_ae_histogram_201	???? ???? ???? ????	0 (0x0000)
0xBAB0 VAR(0x0E,0x02B0)	stat_ae_histogram_202	???? ???? ???? ????	0 (0x0000)
0xBAB2 VAR(0x0E,0x02B2)	stat_ae_histogram_203	???? ???? ???? ????	0 (0x0000)
0xBAB4 VAR(0x0E,0x02B4)	stat_ae_histogram_204	???? ???? ???? ????	0 (0x0000)
0xBAB6 VAR(0x0E,0x02B6)	stat_ae_histogram_205	???? ???? ???? ????	0 (0x0000)
0xBAB8 VAR(0x0E,0x02B8)	stat_ae_histogram_206	???? ???? ???? ????	0 (0x0000)
0xBABA VAR(0x0E,0x02BA)	stat_ae_histogram_207	???? ???? ???? ????	0 (0x0000)
0xBABC VAR(0x0E,0x02BC)	stat_ae_histogram_208	???? ???? ???? ????	0 (0x0000)
0xBABE VAR(0x0E,0x02BE)	stat_ae_histogram_209	???? ???? ???? ????	0 (0x0000)
0xBAC0 VAR(0x0E,0x02C0)	stat_ae_histogram_210	???? ???? ???? ????	0 (0x0000)
0xBAC2 VAR(0x0E,0x02C2)	stat_ae_histogram_211	???? ???? ???? ????	0 (0x0000)
0xBAC4 VAR(0x0E,0x02C4)	stat_ae_histogram_212	???? ???? ???? ????	0 (0x0000)
0xBAC6 VAR(0x0E,0x02C6)	stat_ae_histogram_213	???? ???? ???? ????	0 (0x0000)
0xBAC8 VAR(0x0E,0x02C8)	stat_ae_histogram_214	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xBACA VAR(0x0E,0x02CA)	stat_ae_histogram_215	???? ???? ???? ????	0 (0x0000)
0xBACC VAR(0x0E,0x02CC)	stat_ae_histogram_216	???? ???? ???? ????	0 (0x0000)
0xBACE VAR(0x0E,0x02CE)	stat_ae_histogram_217	???? ???? ???? ????	0 (0x0000)
0xBAD0 VAR(0x0E,0x02D0)	stat_ae_histogram_218	???? ???? ???? ????	0 (0x0000)
0xBAD2 VAR(0x0E,0x02D2)	stat_ae_histogram_219	???? ???? ???? ????	0 (0x0000)
0xBAD4 VAR(0x0E,0x02D4)	stat_ae_histogram_220	???? ???? ???? ????	0 (0x0000)
0xBAD6 VAR(0x0E,0x02D6)	stat_ae_histogram_221	???? ???? ???? ????	0 (0x0000)
0xBAD8 VAR(0x0E,0x02D8)	stat_ae_histogram_222	???? ???? ???? ????	0 (0x0000)
0xBADA VAR(0x0E,0x02DA)	stat_ae_histogram_223	???? ???? ???? ????	0 (0x0000)
0xBADC VAR(0x0E,0x02DC)	stat_ae_histogram_224	???? ???? ???? ????	0 (0x0000)
0xBADE VAR(0x0E,0x02DE)	stat_ae_histogram_225	???? ???? ???? ????	0 (0x0000)
0xBAE0 VAR(0x0E,0x02E0)	stat_ae_histogram_226	???? ???? ???? ????	0 (0x0000)
0xBAE2 VAR(0x0E,0x02E2)	stat_ae_histogram_227	???? ???? ???? ????	0 (0x0000)
0xBAE4 VAR(0x0E,0x02E4)	stat_ae_histogram_228	???? ???? ???? ????	0 (0x0000)
0xBAE6 VAR(0x0E,0x02E6)	stat_ae_histogram_229	???? ???? ???? ????	0 (0x0000)
0xBAE8 VAR(0x0E,0x02E8)	stat_ae_histogram_230	???? ???? ???? ????	0 (0x0000)
0xBAEA VAR(0x0E,0x02EA)	stat_ae_histogram_231	???? ???? ???? ????	0 (0x0000)
0xBAEC VAR(0x0E,0x02EC)	stat_ae_histogram_232	???? ???? ???? ????	0 (0x0000)
0xBAEE VAR(0x0E,0x02EE)	stat_ae_histogram_233	???? ???? ???? ????	0 (0x0000)
0xBAF0 VAR(0x0E,0x02F0)	stat_ae_histogram_234	???? ???? ???? ????	0 (0x0000)
0xBAF2 VAR(0x0E,0x02F2)	stat_ae_histogram_235	???? ???? ???? ????	0 (0x0000)
0xBAF4 VAR(0x0E,0x02F4)	stat_ae_histogram_236	???? ???? ???? ????	0 (0x0000)
0xBAF6 VAR(0x0E,0x02F6)	stat_ae_histogram_237	???? ???? ???? ????	0 (0x0000)
0xBAF8 VAR(0x0E,0x02F8)	stat_ae_histogram_238	???? ???? ???? ????	0 (0x0000)
0xBAFA VAR(0x0E,0x02FA)	stat_ae_histogram_239	???? ???? ???? ????	0 (0x0000)
0xBAFC VAR(0x0E,0x02FC)	stat_ae_histogram_240	???? ???? ???? ????	0 (0x0000)

Table 19. STAT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xBAFE VAR(0x0E,0x02FE)	stat_ae_histogram_241	???? ???? ???? ????	0 (0x0000)
0xBB00 VAR(0x0E,0x0300)	stat_ae_histogram_242	???? ???? ???? ????	0 (0x0000)
0xBB02 VAR(0x0E,0x0302)	stat_ae_histogram_243	???? ???? ???? ????	0 (0x0000)
0xBB04 VAR(0x0E,0x0304)	stat_exposure_coarse_integration_time	???? ???? ???? ????	0 (0x0000)
0xBB06 VAR(0x0E,0x0306)	stat_exposure_fine_integration_time	???? ???? ???? ????	0 (0x0000)
0xBB08 VAR(0x0E,0x0308)	stat_exposure_analog_red_gain	???? ???? ???? ????	0 (0x0000)
0xBB0A VAR(0x0E,0x030A)	stat_exposure_analog_green1_gain	???? ???? ???? ????	0 (0x0000)
0xBB0C VAR(0x0E,0x030C)	stat_exposure_analog_green2_gain	???? ???? ???? ????	0 (0x0000)
0xBB0E VAR(0x0E,0x030E)	stat_exposure_analog_blue_gain	???? ???? ???? ????	0 (0x0000)
0xBB10 VAR(0x0E,0x0310)	stat_exposure_frame_length_lines	???? ???? ???? ????	0 (0x0000)
0xBB12 VAR(0x0E,0x0312)	stat_exposure_line_length_pck	???? ???? ???? ????	0 (0x0000)
0xBB14 VAR(0x0E,0x0314)	stat_exposure_column_gain	???? ????	0 (0x00)
0xBB15 VAR(0x0E,0x0315)	stat_exposure_dcg_gain	???? ????	0 (0x00)
0xBB16 VAR(0x0E,0x0316)	stat_exposure_dgain_red	???? ???? ???? ????	0 (0x0000)
0xBB18 VAR(0x0E,0x0318)	stat_exposure_dgain_green1	???? ???? ???? ????	0 (0x0000)
0xBB1A VAR(0x0E,0x031A)	stat_exposure_dgain_green2	???? ???? ???? ????	0 (0x0000)
0xBB1C VAR(0x0E,0x031C)	stat_exposure_dgain_blue	???? ???? ???? ????	0 (0x0000)
0xBB1E VAR(0x0E,0x031E)	stat_exposure_cpipe_dgain_red	???? ???? ???? ????	0 (0x0000)
0xBB20 VAR(0x0E,0x0320)	stat_exposure_cpipe_dgain_green1	???? ???? ???? ????	0 (0x0000)
0xBB22 VAR(0x0E,0x0322)	stat_exposure_cpipe_dgain_green2	???? ???? ???? ????	0 (0x0000)
0xBB24 VAR(0x0E,0x0324)	stat_exposure_cpipe_dgain_blue	???? ???? ???? ????	0 (0x0000)
0xBB26 VAR(0x0E,0x0326)	stat_exposure_cpipe_dgain_second	???? ???? ???? ????	0 (0x0000)

Low Light Variables List

Table 20. LOW LIGHT VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xBC02 VAR(0x0F,0x0002)	ll_mode	dddd dddd dddd dddd	7 (0x0007)
0xBC04 VAR(0x0F,0x0004)	ll_algo	dddd dddd dddd dddd	1023 (0x03FF)
0xBC07 VAR(0x0F,0x0007)	ll_gamma_select	dddd dddd	1 (0x01)
0xBC0A VAR(0x0F,0x000A)	ll_gamma_contrast_curve_0	dddd dddd dddd dddd	0 (0x0000)
0xBC0C VAR(0x0F,0x000C)	ll_gamma_contrast_curve_1	dddd dddd dddd dddd	0 (0x0000)
0xBC0E VAR(0x0F,0x000E)	ll_gamma_contrast_curve_2	dddd dddd dddd dddd	0 (0x0000)
0xBC10 VAR(0x0F,0x0010)	ll_gamma_contrast_curve_3	dddd dddd dddd dddd	0 (0x0000)
0xBC12 VAR(0x0F,0x0012)	ll_gamma_contrast_curve_4	dddd dddd dddd dddd	0 (0x0000)
0xBC14 VAR(0x0F,0x0014)	ll_gamma_contrast_curve_5	dddd dddd dddd dddd	0 (0x0000)
0xBC16 VAR(0x0F,0x0016)	ll_gamma_contrast_curve_6	dddd dddd dddd dddd	0 (0x0000)
0xBC18 VAR(0x0F,0x0018)	ll_gamma_contrast_curve_7	dddd dddd dddd dddd	0 (0x0000)
0xBC1A VAR(0x0F,0x001A)	ll_gamma_contrast_curve_8	dddd dddd dddd dddd	0 (0x0000)
0xBC1C VAR(0x0F,0x001C)	ll_gamma_contrast_curve_9	dddd dddd dddd dddd	0 (0x0000)
0xBC1E VAR(0x0F,0x001E)	ll_gamma_contrast_curve_10	dddd dddd dddd dddd	0 (0x0000)
0xBC20 VAR(0x0F,0x0020)	ll_gamma_contrast_curve_11	dddd dddd dddd dddd	0 (0x0000)
0xBC22 VAR(0x0F,0x0022)	ll_gamma_contrast_curve_12	dddd dddd dddd dddd	0 (0x0000)
0xBC24 VAR(0x0F,0x0024)	ll_gamma_contrast_curve_13	dddd dddd dddd dddd	0 (0x0000)
0xBC26 VAR(0x0F,0x0026)	ll_gamma_contrast_curve_14	dddd dddd dddd dddd	0 (0x0000)
0xBC28 VAR(0x0F,0x0028)	ll_gamma_contrast_curve_15	dddd dddd dddd dddd	0 (0x0000)
0xBC2A VAR(0x0F,0x002A)	ll_gamma_contrast_curve_16	dddd dddd dddd dddd	0 (0x0000)
0xBC2C VAR(0x0F,0x002C)	ll_gamma_contrast_curve_17	dddd dddd dddd dddd	0 (0x0000)
0xBC2E VAR(0x0F,0x002E)	ll_gamma_contrast_curve_18	dddd dddd dddd dddd	0 (0x0000)
0xBC30 VAR(0x0F,0x0030)	ll_gamma_contrast_curve_19	dddd dddd dddd dddd	0 (0x0000)
0xBC32 VAR(0x0F,0x0032)	ll_gamma_contrast_curve_20	dddd dddd dddd dddd	0 (0x0000)

Table 20. LOW LIGHT VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xBC34 VAR(0x0F,0x0034)	ll_gamma_contrast_curve_21	dddd dddd dddd dddd	0 (0x0000)
0xBC36 VAR(0x0F,0x0036)	ll_gamma_contrast_curve_22	dddd dddd dddd dddd	0 (0x0000)
0xBC38 VAR(0x0F,0x0038)	ll_gamma_contrast_curve_23	dddd dddd dddd dddd	0 (0x0000)
0xBC3A VAR(0x0F,0x003A)	ll_gamma_contrast_curve_24	dddd dddd dddd dddd	0 (0x0000)
0xBC3C VAR(0x0F,0x003C)	ll_gamma_contrast_curve_25	dddd dddd dddd dddd	0 (0x0000)
0xBC3E VAR(0x0F,0x003E)	ll_gamma_contrast_curve_26	dddd dddd dddd dddd	0 (0x0000)
0xBC40 VAR(0x0F,0x0040)	ll_gamma_contrast_curve_27	dddd dddd dddd dddd	0 (0x0000)
0xBC42 VAR(0x0F,0x0042)	ll_gamma_contrast_curve_28	dddd dddd dddd dddd	0 (0x0000)
0xBC44 VAR(0x0F,0x0044)	ll_gamma_contrast_curve_29	dddd dddd dddd dddd	0 (0x0000)
0xBC46 VAR(0x0F,0x0046)	ll_gamma_contrast_curve_30	dddd dddd dddd dddd	0 (0x0000)
0xBC48 VAR(0x0F,0x0048)	ll_gamma_contrast_curve_31	dddd dddd dddd dddd	0 (0x0000)
0xBC4A VAR(0x0F,0x004A)	ll_gamma_contrast_curve_32	dddd dddd dddd dddd	0 (0x0000)
0xBC8E VAR(0x0F,0x008E)	ll_average_luma_fade_to_black	???? ???? ???? ????	0 (0x0000)
0xBCB4 VAR(0x0F,0x00B4)	ll_altm_damping_fast	dddd dddd dddd dddd	63 (0x003F)
0xBCB6 VAR(0x0F,0x00B6)	ll_altm_damping_med	dddd dddd dddd dddd	15 (0x000F)
0xBCB8 VAR(0x0F,0x00B8)	ll_altm_damping_slow	dddd dddd dddd dddd	7 (0x0007)

Flicker Detect Variables List

Table 21. FLICKER DETECTVARIABLES LIST
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC000 VAR(0x10,0x0000)	flicker_detect_status	???? ???? ???? ????	0 (0x0000)

CamControl Variables List

Table 22. CAM CONTROL VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC804 VAR(0x12,0x0004)	cam_sensor_cfg_y_addr_start	dddd dddd dddd dddd	8 (0x0008)
0xC806 VAR(0x12,0x0006)	cam_sensor_cfg_x_addr_start	dddd dddd dddd dddd	2 (0x0002)
0xC808 VAR(0x12,0x0008)	cam_sensor_cfg_y_addr_end	dddd dddd dddd dddd	967 (0x03C7)
0xC80A VAR(0x12,0x000A)	cam_sensor_cfg_x_addr_end	dddd dddd dddd dddd	1281 (0x0501)
0xC80C VAR(0x12,0x000C)	cam_sensor_cfg_pixclk	dddd dddd dddd dddd dddd dddd dddd dddd	54000000 (0x0337F980)
0xC810 VAR(0x12,0x0010)	cam_sensor_cfg_fine_integ_time_min	dddd dddd dddd dddd	700 (0x02BC)
0xC812 VAR(0x12,0x0012)	cam_sensor_cfg_fine_integ_time_max	dddd dddd dddd dddd	1676 (0x068C)
0xC814 VAR(0x12,0x0014)	cam_sensor_cfg_frame_length_lines	dddd dddd dddd dddd	1074 (0x0432)
0xC816 VAR(0x12,0x0016)	cam_sensor_cfg_line_length_pck	dddd dddd dddd dddd	1676 (0x068C)
0xC818 VAR(0x12,0x0018)	cam_sensor_cfg_fine_correction	dddd dddd dddd dddd	0 (0x0000)
0xC830 VAR(0x12,0x0030)	cam_sensor_cfg_tuning	dddd dddd dddd dddd dddd dddd dddd dddd	9381 (0x000024A5)
0xC834 VAR(0x12,0x0034)	cam_sensor_cfg_cci_base_addr_0	dddd dddd	32 (0x20)
0xC835 VAR(0x12,0x0035)	cam_sensor_cfg_cci_base_addr_1	dddd dddd	48 (0x30)
0xC838 VAR(0x12,0x0038)	cam_sensor_control_external_pll	dddd dddd dddd dddd dddd dddd dddd dddd	67242049 (0x04020841)
0xC83C VAR(0x12,0x003C)	cam_sensor_control_base_address	???? ????	0 (0x00)
0xC83D VAR(0x12,0x003D)	cam_sensor_control_revision_number	???? ????	0 (0x00)
0xC83E VAR(0x12,0x003E)	cam_sensor_control_model_id	???? ???? ???? ????	0 (0x0000)
0xC840 VAR(0x12,0x0040)	cam_sensor_control_external_output_clk_div	dddd dddd dddd dddd	0 (0x0000)
0xC842 VAR(0x12,0x0042)	cam_sensor_control_request	dddd dddd	0 (0x00)
0xC843 VAR(0x12,0x0043)	cam_sensor_control_internal_request	???? ????	0 (0x00)
0xC844 VAR(0x12,0x0044)	cam_sensor_control_operation_mode	dddd dddd dddd dddd	2498 (0x09C2)
0xC846 VAR(0x12,0x0046)	cam_sensor_control_read_mode	dddd dddd dddd dddd	0 (0x0000)
0xC848 VAR(0x12,0x0048)	cam_hdr_mc_ctrl_mode	dddd dddd dddd dddd	11 (0x000B)
0xC84A VAR(0x12,0x004A)	cam_hdr_mc_ctrl_s1_threshold	dddd dddd dddd dddd	2976 (0x0BA0)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC84C VAR(0x12,0x004C)	cam_hdr_mc_ctrl_s2_threshold	dddd dddd dddd dddd	4000 (0x0FA0)
0xC84E VAR(0x12,0x004E)	cam_hdr_mc_ctrl_s12_range	dddd dddd dddd dddd	2048 (0x0800)
0xC850 VAR(0x12,0x0050)	cam_hdr_mc_ctrl_diff_threshold	dddd dddd dddd dddd	768 (0x0300)
0xC854 VAR(0x12,0x0054)	cam_hdr_dlo_ctrl_mode	dddd dddd dddd dddd	1 (0x0001)
0xC856 VAR(0x12,0x0056)	cam_hdr_dlo_ctrl_t1_barrier	dddd dddd dddd dddd	3000 (0x0BB8)
0xC858 VAR(0x12,0x0058)	cam_hdr_dlo_ctrl_t2_barrier	dddd dddd dddd dddd	3500 (0x0DAC)
0xC85A VAR(0x12,0x005A)	cam_hdr_dlo_ctrl_t3_barrier	dddd dddd dddd dddd	4000 (0x0FA0)
0xC85C VAR(0x12,0x005C)	cam_hdr_dlo_ctrl_noise_disable_threshold	dddd dddd dddd dddd	256 (0x0100)
0xC85E VAR(0x12,0x005E)	cam_hdr_dlo_ctrl_noise_s2_threshold	dddd dddd dddd dddd	32 (0x0020)
0xC860 VAR(0x12,0x0060)	cam_hdr_dlo_ctrl_noise_s12_range	dddd dddd dddd dddd	5 (0x0005)
0xC864 VAR(0x12,0x0064)	cam_exp_ctrl_coarse_integration_time	dddd dddd dddd dddd	1 (0x0001)
0xC866 VAR(0x12,0x0066)	cam_exp_ctrl_fine_integration_time	dddd dddd dddd dddd	0 (0x0000)
0xC868 VAR(0x12,0x0068)	cam_exp_ctrl_analog_red_gain	dddd dddd dddd dddd	32 (0x0020)
0xC86A VAR(0x12,0x006A)	cam_exp_ctrl_analog_green1_gain	dddd dddd dddd dddd	32 (0x0020)
0xC86C VAR(0x12,0x006C)	cam_exp_ctrl_analog_green2_gain	dddd dddd dddd dddd	32 (0x0020)
0xC86E VAR(0x12,0x006E)	cam_exp_ctrl_analog_blue_gain	dddd dddd dddd dddd	32 (0x0020)
0xC870 VAR(0x12,0x0070)	cam_exp_ctrl_frame_length_lines	dddd dddd dddd dddd	0 (0x0000)
0xC872 VAR(0x12,0x0072)	cam_exp_ctrl_line_length_pck	dddd dddd dddd dddd	0 (0x0000)
0xC874 VAR(0x12,0x0074)	cam_exp_ctrl_column_gain	dddd dddd	0 (0x00)
0xC875 VAR(0x12,0x0075)	cam_exp_ctrl_dcg_gain	dddd dddd	0 (0x00)
0xC876 VAR(0x12,0x0076)	cam_exp_ctrl_dgain_red	dddd dddd dddd dddd	128 (0x0080)
0xC878 VAR(0x12,0x0078)	cam_exp_ctrl_dgain_green1	dddd dddd dddd dddd	128 (0x0080)
0xC87A VAR(0x12,0x007A)	cam_exp_ctrl_dgain_green2	dddd dddd dddd dddd	128 (0x0080)
0xC87C VAR(0x12,0x007C)	cam_exp_ctrl_dgain_blue	dddd dddd dddd dddd	128 (0x0080)
0xC87E VAR(0x12,0x007E)	cam_exp_ctrl_cpipe_dgain_red	dddd dddd dddd dddd	128 (0x0080)
0xC880 VAR(0x12,0x0080)	cam_exp_ctrl_cpipe_dgain_green1	dddd dddd dddd dddd	128 (0x0080)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC882 VAR(0x12,0x0082)	cam_exp_ctrl_cpipe_dgain_green2	dddd dddd dddd dddd	128 (0x0080)
0xC884 VAR(0x12,0x0084)	cam_exp_ctrl_cpipe_dgain_blue	dddd dddd dddd dddd	128 (0x0080)
0xC886 VAR(0x12,0x0086)	cam_exp_ctrl_cpipe_dgain_second	dddd dddd dddd dddd	128 (0x0080)
0xC888 VAR(0x12,0x0088)	cam_cpipe_control_first_black_level	dddd dddd dddd dddd	200 (0x00C8)
0xC88A VAR(0x12,0x008A)	cam_cpipe_control_second_black_level	???? ???? ???? ????	0 (0x0000)
0xC88C VAR(0x12,0x008C)	cam_mode_select	dddd dddd	0 (0x00)
0xC88D VAR(0x12,0x008D)	cam_mode_sync_type	dddd dddd	0 (0x00)
0xC88E VAR(0x12,0x008E)	cam_mode_sync_trigger_mode	dddd dddd	0 (0x00)
0xC88F VAR(0x12,0x008F)	cam_mode_test_pattern_select	dddd dddd	2 (0x02)
0xC890 VAR(0x12,0x0090)	cam_mode_test_pattern_red	dddd dddd dddd dddd dddd dddd dddd dddd	1048575 (0x000FFFFF)
0xC894 VAR(0x12,0x0094)	cam_mode_test_pattern_green	dddd dddd dddd dddd dddd dddd dddd dddd	1048575 (0x000FFFFF)
0xC898 VAR(0x12,0x0098)	cam_mode_test_pattern_blue	dddd dddd dddd dddd dddd dddd dddd dddd	1048575 (0x000FFFFF)
0xC89C VAR(0x12,0x009C)	cam_crop_window_xoffset	dddd dddd dddd dddd	0 (0x0000)
0xC89E VAR(0x12,0x009E)	cam_crop_window_yoffset	dddd dddd dddd dddd	0 (0x0000)
0xC8A0 VAR(0x12,0x00A0)	cam_crop_window_width	dddd dddd dddd dddd	1280 (0x0500)
0xC8A2 VAR(0x12,0x00A2)	cam_crop_window_height	dddd dddd dddd dddd	960 (0x03C0)
0xC8A4 VAR(0x12,0x00A4)	cam_frame_scan_control	dddd dddd dddd dddd	17 (0x0011)
0xC8A8 VAR(0x12,0x00A8)	cam_fov_calib_x_offset	dddd dddd	0 (0x00)
0xC8A9 VAR(0x12,0x00A9)	cam_fov_calib_y_offset	dddd dddd	0 (0x00)
0xC8BC VAR(0x12,0x00BC)	cam_aet_aemode	dddd dddd	0 (0x00)
0xC8BE VAR(0x12,0x00BE)	cam_aet_black_clipping_target	dddd dddd dddd dddd	30 (0x001E)
0xC8C0 VAR(0x12,0x00C0)	cam_aet_exposure_time_ms	dddd dddd dddd dddd	1280 (0x0500)
0xC8C2 VAR(0x12,0x00C2)	cam_aet_exposure_gain	dddd dddd dddd dddd	128 (0x0080)
0xC8C6 VAR(0x12,0x00C6)	cam_aet_ae_min_virt_dgain	dddd dddd dddd dddd	128 (0x0080)
0xC8C8 VAR(0x12,0x00C8)	cam_aet_ae_max_virt_dgain	dddd dddd dddd dddd	640 (0x0280)
0xC8CA VAR(0x12,0x00CA)	cam_aet_ae_min_virt_again	dddd dddd dddd dddd	32 (0x0020)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC8CC VAR(0x12,0x00CC)	cam_aet_ae_max_virt_again	dddd dddd dddd dddd	32 (0x0020)
0xC8CE VAR(0x12,0x00CE)	cam_aet_ae_virt_gain_th_eg	dddd dddd dddd dddd	32 (0x0020)
0xC8D1 VAR(0x12,0x00D1)	cam_aet_flicker_freq_hz	dddd dddd	60 (0x3C)
0xC8D2 VAR(0x12,0x00D2)	cam_aet_max_frame_rate	???? ???? ???? ????	7680 (0x1E00)
0xC8D4 VAR(0x12,0x00D4)	cam_aet_frame_rate_0	dddd dddd dddd dddd	0 (0x0000)
0xC8D6 VAR(0x12,0x00D6)	cam_aet_frame_rate_1	dddd dddd dddd dddd	0 (0x0000)
0xC8D8 VAR(0x12,0x00D8)	cam_aet_frame_rate_2	dddd dddd dddd dddd	0 (0x0000)
0xC8DA VAR(0x12,0x00DA)	cam_aet_target_gain	dddd dddd dddd dddd	256 (0x0100)
0xC8DC VAR(0x12,0x00DC)	cam_awb_ccm_l_0	dddd dddd dddd dddd	156 (0x009C)
0xC8DE VAR(0x12,0x00DE)	cam_awb_ccm_l_1	dddd dddd dddd dddd	46 (0x002E)
0xC8E0 VAR(0x12,0x00E0)	cam_awb_ccm_l_2	dddd dddd dddd dddd	53 (0x0035)
0xC8E2 VAR(0x12,0x00E2)	cam_awb_ccm_l_3	dddd dddd dddd dddd	65448 (0xFFA8)
0xC8E4 VAR(0x12,0x00E4)	cam_awb_ccm_l_4	dddd dddd dddd dddd	279 (0x0117)
0xC8E6 VAR(0x12,0x00E6)	cam_awb_ccm_l_5	dddd dddd dddd dddd	65 (0x0041)
0xC8E8 VAR(0x12,0x00E8)	cam_awb_ccm_l_6	dddd dddd dddd dddd	65442 (0xFFA2)
0xC8EA VAR(0x12,0x00EA)	cam_awb_ccm_l_7	dddd dddd dddd dddd	4 (0x0004)
0xC8EC VAR(0x12,0x00EC)	cam_awb_ccm_l_8	dddd dddd dddd dddd	346 (0x015A)
0xC8EE VAR(0x12,0x00EE)	cam_awb_ccm_m_0	dddd dddd dddd dddd	197 (0x00C5)
0xC8F0 VAR(0x12,0x00F0)	cam_awb_ccm_m_1	dddd dddd dddd dddd	1 (0x0001)
0xC8F2 VAR(0x12,0x00F2)	cam_awb_ccm_m_2	dddd dddd dddd dddd	58 (0x003A)
0xC8F4 VAR(0x12,0x00F4)	cam_awb_ccm_m_3	dddd dddd dddd dddd	65514 (0xFFEA)
0xC8F6 VAR(0x12,0x00F6)	cam_awb_ccm_m_4	dddd dddd dddd dddd	231 (0x00E7)
0xC8F8 VAR(0x12,0x00F8)	cam_awb_ccm_m_5	dddd dddd dddd dddd	47 (0x002F)
0xC8FA VAR(0x12,0x00FA)	cam_awb_ccm_m_6	dddd dddd dddd dddd	9 (0x0009)
0xC8FC VAR(0x12,0x00FC)	cam_awb_ccm_m_7	dddd dddd dddd dddd	65527 (0xFFF7)
0xC8FE VAR(0x12,0x00FE)	cam_awb_ccm_m_8	dddd dddd dddd dddd	256 (0x0100)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC900 VAR(0x12,0x0100)	cam_awb_ccm_r_0	dddd dddd dddd dddd	164 (0x00A4)
0xC902 VAR(0x12,0x0102)	cam_awb_ccm_r_1	dddd dddd dddd dddd	75 (0x004B)
0xC904 VAR(0x12,0x0104)	cam_awb_ccm_r_2	dddd dddd dddd dddd	17 (0x0011)
0xC906 VAR(0x12,0x0106)	cam_awb_ccm_r_3	dddd dddd dddd dddd	65512 (0xFFE8)
0xC908 VAR(0x12,0x0108)	cam_awb_ccm_r_4	dddd dddd dddd dddd	228 (0x00E4)
0xC90A VAR(0x12,0x010A)	cam_awb_ccm_r_5	dddd dddd dddd dddd	52 (0x0034)
0xC90C VAR(0x12,0x010C)	cam_awb_ccm_r_6	dddd dddd dddd dddd	10 (0x000A)
0xC90E VAR(0x12,0x010E)	cam_awb_ccm_r_7	dddd dddd dddd dddd	31 (0x001F)
0xC910 VAR(0x12,0x0110)	cam_awb_ccm_r_8	dddd dddd dddd dddd	216 (0x00D8)
0xC912 VAR(0x12,0x0112)	cam_awb_ccm_l_rg_gain	dddd dddd dddd dddd	91 (0x005B)
0xC914 VAR(0x12,0x0114)	cam_awb_ccm_l_bg_gain	dddd dddd dddd dddd	320 (0x0140)
0xC916 VAR(0x12,0x0116)	cam_awb_ccm_m_rg_gain	dddd dddd dddd dddd	158 (0x009E)
0xC918 VAR(0x12,0x0118)	cam_awb_ccm_m_bg_gain	dddd dddd dddd dddd	278 (0x0116)
0xC91A VAR(0x12,0x011A)	cam_awb_ccm_r_rg_gain	dddd dddd dddd dddd	139 (0x008B)
0xC91C VAR(0x12,0x011C)	cam_awb_ccm_r_bg_gain	dddd dddd dddd dddd	175 (0x00AF)
0xC91E VAR(0x12,0x011E)	cam_awb_ccm_l_ctemp	dddd dddd dddd dddd	2500 (0x09C4)
0xC920 VAR(0x12,0x0120)	cam_awb_ccm_m_ctemp	dddd dddd dddd dddd	3431 (0x0D67)
0xC922 VAR(0x12,0x0122)	cam_awb_ccm_r_ctemp	dddd dddd dddd dddd	6500 (0x1964)
0xC924 VAR(0x12,0x0124)	cam_awb_color_temperature_min	dddd dddd dddd dddd	2700 (0x0A8C)
0xC926 VAR(0x12,0x0126)	cam_awb_color_temperature_max	dddd dddd dddd dddd	6500 (0x1964)
0xC928 VAR(0x12,0x0128)	cam_awb_color_temperature	dddd dddd dddd dddd	6500 (0x1964)
0xC92A VAR(0x12,0x012A)	cam_awb_x_shift	dddd dddd dddd dddd	36 (0x0024)
0xC92C VAR(0x12,0x012C)	cam_awb_y_shift	dddd dddd dddd dddd	32 (0x0020)
0xC92E VAR(0x12,0x012E)	cam_awb_recip_x_scale	dddd dddd dddd dddd	156 (0x009C)
0xC930 VAR(0x12,0x0130)	cam_awb_recip_y_scale	dddd dddd dddd dddd	68 (0x0044)
0xC932 VAR(0x12,0x0132)	cam_awb_rot_center_x	dddd dddd dddd dddd	7 (0x0007)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC934 VAR(0x12,0x0134)	cam_awb_rot_center_y	dddd dddd dddd dddd	65503 (0xFFDF)
0xC936 VAR(0x12,0x0136)	cam_awb_rot_sin	dddd dddd	63 (0x3F)
0xC937 VAR(0x12,0x0137)	cam_awb_rot_cos	dddd dddd	10 (0x0A)
0xC938 VAR(0x12,0x0138)	cam_awb_weight_table_0	dddd dddd dddd dddd	4369 (0x1111)
0xC93A VAR(0x12,0x013A)	cam_awb_weight_table_1	dddd dddd dddd dddd	4369 (0x1111)
0xC93C VAR(0x12,0x013C)	cam_awb_weight_table_2	dddd dddd dddd dddd	8738 (0x2222)
0xC93E VAR(0x12,0x013E)	cam_awb_weight_table_3	dddd dddd dddd dddd	4369 (0x1111)
0xC940 VAR(0x12,0x0140)	cam_awb_weight_table_4	dddd dddd dddd dddd	4642 (0x1222)
0xC942 VAR(0x12,0x0142)	cam_awb_weight_table_5	dddd dddd dddd dddd	8739 (0x2223)
0xC944 VAR(0x12,0x0144)	cam_awb_weight_table_6	dddd dddd dddd dddd	17749 (0x4555)
0xC946 VAR(0x12,0x0146)	cam_awb_weight_table_7	dddd dddd dddd dddd	8737 (0x2221)
0xC948 VAR(0x12,0x0148)	cam_awb_weight_table_8	dddd dddd dddd dddd	9318 (0x2466)
0xC94A VAR(0x12,0x014A)	cam_awb_weight_table_9	dddd dddd dddd dddd	26196 (0x6654)
0xC94C VAR(0x12,0x014C)	cam_awb_weight_table_10	dddd dddd dddd dddd	12852 (0x3234)
0xC94E VAR(0x12,0x014E)	cam_awb_weight_table_11	dddd dddd dddd dddd	13394 (0x3452)
0xC950 VAR(0x12,0x0150)	cam_awb_weight_table_12	dddd dddd dddd dddd	9591 (0x2577)
0xC952 VAR(0x12,0x0152)	cam_awb_weight_table_13	dddd dddd dddd dddd	26468 (0x6764)
0xC954 VAR(0x12,0x0154)	cam_awb_weight_table_14	dddd dddd dddd dddd	8722 (0x2212)
0xC956 VAR(0x12,0x0156)	cam_awb_weight_table_15	dddd dddd dddd dddd	9554 (0x2552)
0xC958 VAR(0x12,0x0158)	cam_awb_weight_table_16	dddd dddd dddd dddd	4948 (0x1354)
0xC95A VAR(0x12,0x015A)	cam_awb_weight_table_17	dddd dddd dddd dddd	17765 (0x4565)
0xC95C VAR(0x12,0x015C)	cam_awb_weight_table_18	dddd dddd dddd dddd	17442 (0x4422)
0xC95E VAR(0x12,0x015E)	cam_awb_weight_table_19	dddd dddd dddd dddd	9009 (0x2331)
0xC960 VAR(0x12,0x0160)	cam_awb_weight_table_20	dddd dddd dddd dddd	4386 (0x1122)
0xC962 VAR(0x12,0x0162)	cam_awb_weight_table_21	dddd dddd dddd dddd	4660 (0x1234)
0xC964 VAR(0x12,0x0164)	cam_awb_weight_table_22	dddd dddd dddd dddd	13109 (0x3335)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC966 VAR(0x12,0x0166)	cam_awb_weight_table_23	dddd dddd dddd dddd	26194 (0x6652)
0xC968 VAR(0x12,0x0168)	cam_awb_weight_table_24	dddd dddd dddd dddd	4369 (0x1111)
0xC96A VAR(0x12,0x016A)	cam_awb_weight_table_25	dddd dddd dddd dddd	4370 (0x1112)
0xC96C VAR(0x12,0x016C)	cam_awb_weight_table_26	dddd dddd dddd dddd	4644 (0x1224)
0xC96E VAR(0x12,0x016E)	cam_awb_weight_table_27	dddd dddd dddd dddd	22098 (0x5652)
0xC970 VAR(0x12,0x0170)	cam_awb_weight_table_28	dddd dddd dddd dddd	4369 (0x1111)
0xC972 VAR(0x12,0x0172)	cam_awb_weight_table_29	dddd dddd dddd dddd	4369 (0x1111)
0xC974 VAR(0x12,0x0174)	cam_awb_weight_table_30	dddd dddd dddd dddd	4370 (0x1112)
0xC976 VAR(0x12,0x0176)	cam_awb_weight_table_31	dddd dddd dddd dddd	9010 (0x2332)
0xC979 VAR(0x12,0x0179)	cam_awb_luma_thresh_low	dddd dddd	16 (0x10)
0xC97A VAR(0x12,0x017A)	cam_awb_luma_thresh_high	dddd dddd	240 (0xF0)
0xC97B VAR(0x12,0x017B)	cam_awb_weight_thresh_low	dddd dddd	1 (0x01)
0xC97D VAR(0x12,0x017D)	cam_awb_mode	dddd dddd	0 (0x00)
0xC980 VAR(0x12,0x0180)	cam_awb_tints_ctemp_threshold	dddd dddd dddd dddd	3500 (0x0DAC)
0xC982 VAR(0x12,0x0182)	cam_awb_k_r_l	dddd dddd	128 (0x80)
0xC983 VAR(0x12,0x0183)	cam_awb_k_g_l	dddd dddd	128 (0x80)
0xC984 VAR(0x12,0x0184)	cam_awb_k_b_l	dddd dddd	128 (0x80)
0xC985 VAR(0x12,0x0185)	cam_awb_k_r_r	dddd dddd	128 (0x80)
0xC986 VAR(0x12,0x0186)	cam_awb_k_g_r	dddd dddd	128 (0x80)
0xC987 VAR(0x12,0x0187)	cam_awb_k_b_r	dddd dddd	128 (0x80)
0xC988 VAR(0x12,0x0188)	cam_altm_mode	dddd dddd dddd dddd	7 (0x0007)
0xC98A VAR(0x12,0x018A)	cam_altm_key_k0	dddd dddd dddd dddd	128 (0x0080)
0xC98C VAR(0x12,0x018C)	cam_altm_key_k1	???? ???? ???? ???? ???? ???? ???? ????	0 (0x00000000)
0xC990 VAR(0x12,0x0190)	cam_altm_lo_gamma	dddd dddd dddd dddd	16 (0x0010)
0xC992 VAR(0x12,0x0192)	cam_altm_hi_gamma	dddd dddd dddd dddd	32 (0x0020)
0xC994 VAR(0x12,0x0194)	cam_altm_k1_slope	dddd dddd dddd dddd	175 (0x00AF)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC996 VAR(0x12,0x0196)	cam_altm_k1_min	dddd dddd dddd dddd	1024 (0x0400)
0xC998 VAR(0x12,0x0198)	cam_altm_k1_max	dddd dddd dddd dddd	65535 (0xFFFF)
0xC99A VAR(0x12,0x019A)	cam_altm_dark_bm	dddd dddd dddd dddd	1024 (0x0400)
0xC99C VAR(0x12,0x019C)	cam_altm_bright_bm	dddd dddd dddd dddd	2048 (0x0800)
0xC99E VAR(0x12,0x019E)	cam_altm_k1_damping_speed	dddd dddd dddd dddd	1 (0x0001)
0xC9A0 VAR(0x12,0x01A0)	cam_altm_sharpness_dark_bm	dddd dddd dddd dddd	200 (0x00C8)
0xC9A2 VAR(0x12,0x01A2)	cam_altm_sharpness_bright_bm	dddd dddd dddd dddd	2900 (0x0B54)
0xC9A4 VAR(0x12,0x01A4)	cam_altm_sharpness_strength_dark	dddd dddd dddd dddd	5 (0x0005)
0xC9A6 VAR(0x12,0x01A6)	cam_altm_sharpness_strength_bright	dddd dddd dddd dddd	8 (0x0008)
0xC9A8 VAR(0x12,0x01A8)	cam_stat_mode	dddd dddd dddd dddd	30 (0x001E)
0xC9AA VAR(0x12,0x01AA)	cam_stat_control	dddd dddd dddd dddd	0 (0x0000)
0xC9AC VAR(0x12,0x01AC)	cam_stat_exclude_control	dddd dddd	0 (0x00)
0xC9B0 VAR(0x12,0x01B0)	cam_stat_exclude_window_x_offset	dddd dddd dddd dddd	0 (0x0000)
0xC9B2 VAR(0x12,0x01B2)	cam_stat_exclude_window_y_offset	dddd dddd dddd dddd	0 (0x0000)
0xC9B4 VAR(0x12,0x01B4)	cam_stat_exclude_window_width	dddd dddd dddd dddd	0 (0x0000)
0xC9B6 VAR(0x12,0x01B6)	cam_stat_exclude_window_height	dddd dddd dddd dddd	0 (0x0000)
0xC9B8 VAR(0x12,0x01B8)	cam_stat_ae_altm_fd_window_x_offset	dddd dddd dddd dddd	0 (0x0000)
0xC9BA VAR(0x12,0x01BA)	cam_stat_ae_altm_fd_window_y_offset	dddd dddd dddd dddd	0 (0x0000)
0xC9BC VAR(0x12,0x01BC)	cam_stat_ae_altm_fd_window_width	dddd dddd dddd dddd	1280 (0x0500)
0xC9BE VAR(0x12,0x01BE)	cam_stat_ae_altm_fd_window_height	dddd dddd dddd dddd	960 (0x03C0)
0xC9C0 VAR(0x12,0x01C0)	cam_stat_awb_clip_window_x_offset	dddd dddd dddd dddd	0 (0x0000)
0xC9C2 VAR(0x12,0x01C2)	cam_stat_awb_clip_window_y_offset	dddd dddd dddd dddd	0 (0x0000)
0xC9C4 VAR(0x12,0x01C4)	cam_stat_awb_clip_window_width	dddd dddd dddd dddd	1280 (0x0500)
0xC9C6 VAR(0x12,0x01C6)	cam_stat_awb_clip_window_height	dddd dddd dddd dddd	960 (0x03C0)
0xC9C8 VAR(0x12,0x01C8)	cam_ll_mode	dddd dddd dddd dddd	3 (0x0003)
0xC9CA VAR(0x12,0x01CA)	cam_ll_brightness_metric	???? ???? ???? ????	0 (0x0000)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC9CC VAR(0x12,0x01CC)	cam_ll_bm_offset	dddd dddd dddd dddd	63744 (0xF900)
0xC9CE VAR(0x12,0x01CE)	cam_ll_sensor_red_gain_metric	???? ???? ???? ????	0 (0x0000)
0xC9D0 VAR(0x12,0x01D0)	cam_ll_sensor_green_gain_metric	???? ???? ???? ????	0 (0x0000)
0xC9D2 VAR(0x12,0x01D2)	cam_ll_sensor_blue_gain_metric	???? ???? ???? ????	0 (0x0000)
0xC9D4 VAR(0x12,0x01D4)	cam_ll_red_gain_metric	???? ???? ???? ????	0 (0x0000)
0xC9D6 VAR(0x12,0x01D6)	cam_ll_green_gain_metric	???? ???? ???? ????	0 (0x0000)
0xC9D8 VAR(0x12,0x01D8)	cam_ll_blue_gain_metric	???? ???? ???? ????	0 (0x0000)
0xC9DA VAR(0x12,0x01DA)	cam_ll_snr_metric	???? ???? ???? ????	0 (0x0000)
0xC9DC VAR(0x12,0x01DC)	cam_ll_dark_bm	dddd dddd dddd dddd	500 (0x01F4)
0xC9DE VAR(0x12,0x01DE)	cam_ll_bright_bm	dddd dddd dddd dddd	3000 (0x0BB8)
0xC9E0 VAR(0x12,0x01E0)	cam_ll_high_gm	dddd dddd dddd dddd	3520 (0x0DC0)
0xC9E2 VAR(0x12,0x01E2)	cam_ll_low_gm	dddd dddd dddd dddd	32 (0x0020)
0xC9E6 VAR(0x12,0x01E6)	cam_ll_demosaic_high	dddd dddd	77 (0x4D)
0xC9E7 VAR(0x12,0x01E7)	cam_ll_demosaic_low	dddd dddd	8 (0x08)
0xC9E8 VAR(0x12,0x01E8)	cam_ll_ap_gain_dark	dddd dddd	1 (0x01)
0xC9E9 VAR(0x12,0x01E9)	cam_ll_ap_gain_bright	dddd dddd	2 (0x02)
0xC9EA VAR(0x12,0x01EA)	cam_ll_ap_thresh_high	dddd dddd	77 (0x4D)
0xC9EB VAR(0x12,0x01EB)	cam_ll_ap_thresh_low	dddd dddd	8 (0x08)
0xC9EC VAR(0x12,0x01EC)	cam_ll_contrast_bright_bm	dddd dddd dddd dddd	3000 (0x0BB8)
0xC9EE VAR(0x12,0x01EE)	cam_ll_contrast_dark_bm	dddd dddd dddd dddd	500 (0x01F4)
0xC9F0 VAR(0x12,0x01F0)	cam_ll_gamma	dddd dddd dddd dddd	100 (0x0064)
0xC9F2 VAR(0x12,0x01F2)	cam_ll_contrast_gradient_bright	dddd dddd	32 (0x20)
0xC9F3 VAR(0x12,0x01F3)	cam_ll_contrast_gradient_dark	dddd dddd	32 (0x20)
0xC9F4 VAR(0x12,0x01F4)	cam_ll_contrast_intercept_point_bright	dddd dddd	60 (0x3C)
0xC9F5 VAR(0x12,0x01F5)	cam_ll_contrast_intercept_point_dark	dddd dddd	40 (0x28)
0xC9F6 VAR(0x12,0x01F6)	cam_ll_bright_fade_to_black_luma	dddd dddd dddd dddd	16 (0x0010)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xC9F8 VAR(0x12,0x01F8)	cam_ll_dark_fade_to_black_luma	dddd dddd dddd dddd	1 (0x0001)
0xC9FA VAR(0x12,0x01FA)	cam_ll_sdc_dp_dark_bm	dddd dddd dddd dddd	200 (0x00C8)
0xC9FC VAR(0x12,0x01FC)	cam_ll_sdc_dp_bright_bm	dddd dddd dddd dddd	2900 (0x0B54)
0xC9FE VAR(0x12,0x01FE)	cam_ll_sdc_dp_strength_dark	dddd dddd	8 (0x08)
0xC9FF VAR(0x12,0x01FF)	cam_ll_sdc_dp_strength_bright	dddd dddd	15 (0x0F)
0xCA00 VAR(0x12,0x0200)	cam_ll_sdc_hp_dark_bm	dddd dddd dddd dddd	200 (0x00C8)
0xCA02 VAR(0x12,0x0202)	cam_ll_sdc_hp_bright_bm	dddd dddd dddd dddd	2900 (0x0B54)
0xCA04 VAR(0x12,0x0204)	cam_ll_sdc_hp_strength_dark	dddd dddd	8 (0x08)
0xCA05 VAR(0x12,0x0205)	cam_ll_sdc_hp_strength_bright	dddd dddd	15 (0x0F)
0xCA06 VAR(0x12,0x0206)	cam_ll_sdc_crossfactor_dark_bm	dddd dddd dddd dddd	200 (0x00C8)
0xCA08 VAR(0x12,0x0208)	cam_ll_sdc_crossfactor_bright_bm	dddd dddd dddd dddd	2900 (0x0B54)
0xCA0A VAR(0x12,0x020A)	cam_ll_sdc_crossfactor_strength_dark	dddd dddd	4 (0x04)
0xCA0B VAR(0x12,0x020B)	cam_ll_sdc_crossfactor_strength_bright	dddd dddd	12 (0x0C)
0xCA0C VAR(0x12,0x020C)	cam_ll_sdc_maxfactor_dark_bm	dddd dddd dddd dddd	200 (0x00C8)
0xCA0E VAR(0x12,0x020E)	cam_ll_sdc_maxfactor_bright_bm	dddd dddd dddd dddd	2900 (0x0B54)
0xCA10 VAR(0x12,0x0210)	cam_ll_sdc_maxfactor_strength_dark	dddd dddd	1 (0x01)
0xCA11 VAR(0x12,0x0211)	cam_ll_sdc_maxfactor_strength_bright	dddd dddd	1 (0x01)
0xCA12 VAR(0x12,0x0212)	cam_ll_sdc_th_bm	dddd dddd dddd dddd	4096 (0x1000)
0xCA16 VAR(0x12,0x0216)	cam_ll_cdc_dp_dark_bm	dddd dddd dddd dddd	200 (0x00C8)
0xCA18 VAR(0x12,0x0218)	cam_ll_cdc_dp_bright_bm	dddd dddd dddd dddd	2900 (0x0B54)
0xCA1A VAR(0x12,0x021A)	cam_ll_cdc_dp_strength_dark	dddd dddd	8 (0x08)
0xCA1B VAR(0x12,0x021B)	cam_ll_cdc_dp_strength_bright	dddd dddd	15 (0x0F)
0xCA1C VAR(0x12,0x021C)	cam_ll_cdc_hp_dark_bm	dddd dddd dddd dddd	200 (0x00C8)
0xCA1E VAR(0x12,0x021E)	cam_ll_cdc_hp_bright_bm	dddd dddd dddd dddd	2900 (0x0B54)
0xCA20 VAR(0x12,0x0220)	cam_ll_cdc_hp_strength_dark	dddd dddd	8 (0x08)
0xCA21 VAR(0x12,0x0221)	cam_ll_cdc_hp_strength_bright	dddd dddd	15 (0x0F)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xCA22 VAR(0x12,0x0222)	cam_ll_cdc_crossfactor_dark_bm	dddd dddd dddd dddd	200 (0x00C8)
0xCA24 VAR(0x12,0x0224)	cam_ll_cdc_crossfactor_bright_bm	dddd dddd dddd dddd	2900 (0x0B54)
0xCA26 VAR(0x12,0x0226)	cam_ll_cdc_crossfactor_strength_dark	dddd dddd	4 (0x04)
0xCA27 VAR(0x12,0x0227)	cam_ll_cdc_crossfactor_strength_bright	dddd dddd	12 (0x0C)
0xCA28 VAR(0x12,0x0228)	cam_ll_cdc_th_bm	dddd dddd dddd dddd	4096 (0x1000)
0xCA2C VAR(0x12,0x022C)	cam_ll_adacd_gr_weights_strength_low	dddd dddd dddd dddd	6 (0x0006)
0xCA2E VAR(0x12,0x022E)	cam_ll_adacd_gr_weights_strength_high	dddd dddd dddd dddd	3 (0x0003)
0xCA30 VAR(0x12,0x0230)	cam_ll_adacd_gr_weights_low_snr	dddd dddd dddd dddd	1000 (0x03E8)
0xCA32 VAR(0x12,0x0232)	cam_ll_adacd_gr_weights_high_snr	dddd dddd dddd dddd	3328 (0x0D00)
0xCA34 VAR(0x12,0x0234)	cam_ll_nr_lut_0_gain	dddd dddd dddd dddd	32 (0x0020)
0xCA36 VAR(0x12,0x0236)	cam_ll_nr_lut_0_sigma	dddd dddd dddd dddd	52 (0x0034)
0xCA38 VAR(0x12,0x0238)	cam_ll_nr_lut_0_k0	dddd dddd dddd dddd	147 (0x0093)
0xCA3C VAR(0x12,0x023C)	cam_ll_nr_lut_1_gain	dddd dddd dddd dddd	88 (0x0058)
0xCA3E VAR(0x12,0x023E)	cam_ll_nr_lut_1_sigma	dddd dddd dddd dddd	55 (0x0037)
0xCA40 VAR(0x12,0x0240)	cam_ll_nr_lut_1_k0	dddd dddd dddd dddd	147 (0x0093)
0xCA44 VAR(0x12,0x0244)	cam_ll_nr_lut_2_gain	dddd dddd dddd dddd	352 (0x0160)
0xCA46 VAR(0x12,0x0246)	cam_ll_nr_lut_2_sigma	dddd dddd dddd dddd	263 (0x0107)
0xCA48 VAR(0x12,0x0248)	cam_ll_nr_lut_2_k0	dddd dddd dddd dddd	147 (0x0093)
0xCA4C VAR(0x12,0x024C)	cam_ll_nr_lut_3_gain	dddd dddd dddd dddd	704 (0x02C0)
0xCA4E VAR(0x12,0x024E)	cam_ll_nr_lut_3_sigma	dddd dddd dddd dddd	261 (0x0105)
0xCA50 VAR(0x12,0x0250)	cam_ll_nr_lut_3_k0	dddd dddd dddd dddd	147 (0x0093)
0xCA58 VAR(0x12,0x0258)	cam_ll_ck_0_snr	dddd dddd dddd dddd	2816 (0x0B00)
0xCA60 VAR(0x12,0x0260)	cam_ll_ck_0_chroma_gain_high	dddd dddd dddd dddd	512 (0x0200)
0xCA64 VAR(0x12,0x0264)	cam_ll_ck_1_snr	dddd dddd dddd dddd	2560 (0x0A00)
0xCA6C VAR(0x12,0x026C)	cam_ll_ck_1_chroma_gain_high	dddd dddd dddd dddd	512 (0x0200)
0xCA70 VAR(0x12,0x0270)	cam_ll_ck_2_snr	dddd dddd dddd dddd	102 (0x0066)

Table 22. CAM CONTROL VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xCA80 VAR(0x12,0x0280)	cam_pga_pga_control	dddd dddd dddd dddd	0 (0x0000)
0xCA84 VAR(0x12,0x0284)	cam_sysctl_pll_control	dddd dddd	1 (0x01)
0xCA88 VAR(0x12,0x0288)	cam_sysctl_pll_divider_m_n_1_clk	dddd dddd dddd dddd	272 (0x0110)
0xCA8C VAR(0x12,0x028C)	cam_sysctl_pll_divider_p_1_clk	dddd dddd dddd dddd	51 (0x0033)
0xCA90 VAR(0x12,0x0290)	cam_output_width	dddd dddd dddd dddd	1280 (0x0500)
0xCA92 VAR(0x12,0x0292)	cam_output_height	dddd dddd dddd dddd	960 (0x03C0)
0xCA94 VAR(0x12,0x0294)	cam_output_format_yuv	dddd dddd dddd dddd	16 (0x0010)
0xCA96 VAR(0x12,0x0296)	cam_output_format	dddd dddd	0 (0x00)
0xCA97 VAR(0x12,0x0297)	cam_output_format_bayer_path	dddd dddd	0 (0x00)
0xCA98 VAR(0x12,0x0298)	cam_output_format_bayer_width	???? ????	12 (0x0C)
0xCA99 VAR(0x12,0x0299)	cam_output_y_offset	dddd dddd	0 (0x00)
0xCA9C VAR(0x12,0x029C)	cam_port_parallel_control	dddd dddd dddd dddd	645 (0x0285)
0xCAA0 VAR(0x12,0x02A0)	cam_port_composite_control	???? ???? ???? ????	0 (0x0000)
0xCAA8 VAR(0x12,0x02A8)	cam_tempmon_tcontrol	dddd dddd dddd dddd	1 (0x0001)
0xCAAA VAR(0x12,0x02AA)	cam_tempmon_tstatus	???? ???? ???? ????	0 (0x0000)
0xCAAC VAR(0x12,0x02AC)	cam_tempmon_damping_factor	dddd dddd	16 (0x10)
0xCAAD VAR(0x12,0x02AD)	cam_tempmon_high_threshold	dddd dddd	70 (0x46)
0xCAAE VAR(0x12,0x02AE)	cam_tempmon_low_threshold	dddd dddd	10 (0x0A)
0xCAAF VAR(0x12,0x02AF)	cam_tempmon_temperature	???? ????	0 (0x00)
0xCAB0 VAR(0x12,0x02B0)	cam_tempmon_temperature_min	???? ????	0 (0x00)
0xCAB1 VAR(0x12,0x02B1)	cam_tempmon_temperature_max	???? ????	0 (0x00)
0xCAB4 VAR(0x12,0x02B4)	cam_flicker_detect_fd_mode	dddd dddd dddd dddd	1 (0x0001)
0xCAB8 VAR(0x12,0x02B8)	cam_adaptation_ta_mode	dddd dddd dddd dddd	1 (0x0001)
0xCABC VAR(0x12,0x02BC)	cam_sensor_control2_hispi	dddd dddd dddd dddd	2 (0x0002)

Sensor Manager Variables List

Table 23. SENSOR MANAGER VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xCC00 VAR(0x13,0x0000)	sensor_mgr_status	???? ???? ???? ????	0 (0x0000)
0xCC02 VAR(0x13,0x0002)	sensor_mgr_mode	dddd dddd dddd dddd	3 (0x0003)
0xCCB2 VAR(0x13,0x00B2)	sensor_mgr_min_manual_gain	???? ???? ???? ????	0 (0x0000)
0xCCB4 VAR(0x13,0x00B4)	sensor_mgr_max_manual_gain	???? ???? ???? ????	0 (0x0000)
0xCCB6 VAR(0x13,0x00B6)	sensor_mgr_min_manual_it_ms	???? ???? ???? ????	0 (0x0000)
0xCCB8 VAR(0x13,0x00B8)	sensor_mgr_max_manual_it_ms	???? ???? ???? ????	0 (0x0000)

System Manager Variables List

Table 24. SYSTEM MANAGER VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xDC00 VAR(0x17,0x0000)	sysmgr_status	???? ???? ???? ????	0 (0x0000)
0xDC07 VAR(0x17,0x0007)	sysmgr_config_mode	dddd dddd	0 (0x00)
0xDC09 VAR(0x17,0x0009)	sysmgr_flash_config_status	???? ????	0 (0x00)
0xDC0A VAR(0x17,0x000A)	sysmgr_cmd_status	???? ????	0 (0x00)
0xDC0B VAR(0x17,0x000B)	sysmgr_cmd_comp_id	???? ????	0 (0x00)
0xDC0C VAR(0x17,0x000C)	sysmgr_cmd_comp_failure_id	???? ???? ???? ????	0 (0x0000)
0xDC1E VAR(0x17,0x001E)	sysmgr_config_flash_status_table_id	???? ????	0 (0x00)

Patch Loader Variables List

Table 25. PATCH LOADER VARIABLES LIST

(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xE000 VAR(0x18,0x0000)	patchldr_load_address	dddd dddd dddd dddd	0 (0x0000)
0xE002 VAR(0x18,0x0002)	patchldr_size_bytes	dddd dddd dddd dddd	0 (0x0000)
0xE004 VAR(0x18,0x0004)	patchldr_loader_address	dddd dddd dddd dddd	0 (0x0000)
0xE006 VAR(0x18,0x0006)	patchldr_patch_id	dddd dddd dddd dddd	0 (0x0000)

Table 25. PATCH LOADER VARIABLES LIST (continued)
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xE008 VAR(0x18,0x0008)	patchldr_firmware_id	dddd dddd dddd dddd dddd dddd dddd dddd	0 (0x00000000)
0xE00C VAR(0x18,0x000C)	patchldr_apply_status	???? ????	0 (0x00)
0xE00D VAR(0x18,0x000D)	patchldr_num_patches	???? ????	0 (0x00)
0xE00E VAR(0x18,0x000E)	patchldr_patch_id_0	???? ???? ???? ????	0 (0x0000)
0xE010 VAR(0x18,0x0010)	patchldr_patch_id_1	???? ???? ???? ????	0 (0x0000)
0xE012 VAR(0x18,0x0012)	patchldr_patch_id_2	???? ???? ???? ????	0 (0x0000)
0xE014 VAR(0x18,0x0014)	patchldr_patch_id_3	???? ???? ???? ????	0 (0x0000)
0xE016 VAR(0x18,0x0016)	patchldr_patch_id_4	???? ???? ???? ????	0 (0x0000)
0xE018 VAR(0x18,0x0018)	patchldr_patch_id_5	???? ???? ???? ????	0 (0x0000)
0xE01A VAR(0x18,0x001A)	patchldr_patch_id_6	???? ???? ???? ????	0 (0x0000)
0xE01C VAR(0x18,0x001C)	patchldr_patch_id_7	???? ???? ???? ????	0 (0x0000)

Command Handler Variables List

Table 26. COMMAND HANDLER VARIABLES LIST
(1 = Read-Only, Always 1; 0 = Read-Only, Always 0; d = Programmable; ? = Read-Only, Dynamic)

Register Dec (Hex)	Name	Data Format (Binary)	Default Value Dec (Hex)
0xFC00 VAR(0x1F,0x0000)	cmd_handler_params_pool_0	dddd dddd dddd dddd	0 (0x0000)
0xFC02 VAR(0x1F,0x0002)	cmd_handler_params_pool_1	dddd dddd dddd dddd	0 (0x0000)
0xFC04 VAR(0x1F,0x0004)	cmd_handler_params_pool_2	dddd dddd dddd dddd	0 (0x0000)
0xFC06 VAR(0x1F,0x0006)	cmd_handler_params_pool_3	dddd dddd dddd dddd	0 (0x0000)
0xFC08 VAR(0x1F,0x0008)	cmd_handler_params_pool_4	dddd dddd dddd dddd	0 (0x0000)
0xFC0A VAR(0x1F,0x000A)	cmd_handler_params_pool_5	dddd dddd dddd dddd	0 (0x0000)
0xFC0C VAR(0x1F,0x000C)	cmd_handler_params_pool_6	dddd dddd dddd dddd	0 (0x0000)
0xFC0E VAR(0x1F,0x000E)	cmd_handler_params_pool_7	dddd dddd dddd dddd	0 (0x0000)

SYSCTL Register Descriptions

Table 27. SYSCTL REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0 R0x0000	**15:0**	**0x0062**	**chip_version_reg (RO)**
	Chip Identification. Read−only.		
6 R0x0006	**15:0**	**0xBA90**	**user_defined_device_address_id (R/W)**
	15:9	0x005D	user_defined_device_address_id1 Device used on the two−wire serial interface (CCI) when SADDR = 1 (even num only).
	8	X	Reserved
	7:1	0x0048	user_defined_device_address_id0 Device used on the two−wire serial interface (CCI) when SADDR = 0 (even num only).
	0	X	Reserved
26 R0x001A	**15:0**	**0x0E04**	**reset_and_misc_control (R/W)**
	15:12	X	Reserved
	11	0x0001	Reserved
	10	0x0001	Reserved
	9	0x0001	Reserved
	8	0x0000	Reserved
	7	X	Reserved
	6:4	RO	Reserved
	3	X	Reserved
	2	0x0001	Reserved
	1	0x0000	Reserved
	0	0x0000	reset_soft Soft system reset. 0: Normal operation. 1: Reset.
	Miscellaneous Control bits		
32 R0x0020	**15:0**	**0x0000**	**mcu_boot_options (R/W)**
	15:8	X	Reserved
	7:6	0x0000	Reserved
	5	0x0000	spi_config_disable Disable firmware loading any configuration data from an SPI device. 0: Normal operation with SPI configuration enabled. 1: Disable configuration from SPI device.
	4	0x0000	mcu_boot_pll_bypass Enable PLL to be bypassed and unconfigured on boot−up. 0: Normal PLL operation when using a 27MHz clock. Firmware will configure the PLL for external 27MHz clock input, enable it and wait for lock. 1: PLL bypass operation. Firmware will not configure or enable the PLL, the PLL is bypassed and the system will run from the pin clock.
	3	0x0000	Reserved
	2	0x0000	Reserved
	1	X	Reserved
	0	0x0000	Reserved
	MCU Boot Control		

Table 27. SYSCTL REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
64 R0x0040	**15:0**	**0x8000**	**command_register (R/W)**
	15	0x0001	doorbell Doorbell bit. Set to 1 by the host to indicate that host_command holds a valid command. Set to 0 by firmware to indicate that host_command holds a valid response for the host. Write of 0 by the host is ignored; the host can only set this bit to 1.
	14:0	0x0000	host_command Host command.
	Host Command Register		
88 R0x0058	**15:0**	**0x0201**	**customer_rev (R/W)**
	Silicon Revision.		

CPIPE Control Register Descriptions

Table 28. CPIPE CONTROL REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
12816 R0x3210	**15:0**	**0x08B0**	**color_pipeline_control (R/W)**
	15:13	X	Reserved
	12	0x0000	Reserved
	11	0x0001	grb_enable Enable Green Channel Rebalance (GRB). Legal values: [0,1].
	10	0x0000	hue_enable Enable hue adjustment. Legal values: [0,1].
	9	0x0000	pcr_enable Enable preferred color reproduction (PCR). Legal values: [0,1].
	8	0x0000	Reserved
	7	0x0001	gamma_en Enable gamma correction.
	6	X	Reserved
	5	0x0001	en_ccm Enable color correction. A color correction matrix (CCM) is applied to the RGB data. The equations are: Rout = CCM_CC1 * Rin + CCM_CC2 * Gin + CCM_CC3 * Bin Gout = CCM_CC4 * Rin + CCM_CC5 * Gin + CCM_CC6 * Bin Bout = CCM_CC7 * Rin + CCM_CC8 * Gin + CCM_CC9 * Bin
	4	0x0001	Reserved
	3	0x0000	Reserved
	2:0	X	Reserved

CPIPE Kernel Register Descriptions

Table 29. CPIPE KENREL REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
12832 R0x3220	**15:0**	**0x000C**	**dm_edge_th (R/W)**
	Demosaic Edge Threshold. This is the value used in demosaic to determine if the current pixel is on an edge. Legal values: [0, 255].		
12834 R0x3222	**15:0**	**0x1008**	**grb_pos_thresholds (R/W)**
	15:8	0x0010	grb_apos GRB − maximum positive delta_g slope. This is the slope of the line denoting the maximum positive delta_g. This number is multiplied by the median green. In position dependent mode, this is a0pos. Legal values: [0,255].
	7:0	0x0008	grb_bpos GRB − maximum positive delta_g offset. This is the offset of the line denoting the maximum positive delta_g. This number is added to the scaled center green pixel. In position dependent mode, this is b0pos. Legal values: [0,255].
12836 R0x3224	**15:0**	**0x1008**	**grb_neg_thresholds (R/W)**
	15:8	0x0010	grb_aneg GRB − maximum negative delta_g slope. This is the slope of the line denoting the maximum negative delta_g. This number is multiplied by the median green. In position dependent mode, this is a0neg. Legal values: [0,255].
	7:0	0x0008	grb_bneg GRB − maximum negative delta_g offset. This is the offset of the line denoting the maximum negative delta_g. This number is added to the scaled center green pixel. In position dependent mode, this is b0neg. Legal values: [0,255].

CPIPE YUV Pipe Register Descriptions

Table 30. CPIPE YUV PIPE REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13312 R0x3400	**15:0**	**0x0000**	**hue1_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_10 Hue Rotation angle for Q2,CR/CB=0.02 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_1 Hue Rotation angle for Q1,CR/CB=0.02 Legal values: [−22,22].
13314 R0x3402	**15:0**	**0x0000**	**hue2_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_11 Hue Rotation angle for Q2,CR/CB=0.3 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_2 Hue Rotation angle for Q1,CR/CB=0.3 Legal values: [−22,22].

Table 30. CPIPE YUV PIPE REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13316 R0x3404	**15:0**	**0x0000**	**hue3_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_12 Hue Rotation angle for Q2,CR/CB=0.6 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_3 Hue Rotation angle for Q1,CR/CB=0.6 Legal values: [−22,22].
13318 R0x3406	**15:0**	**0x0000**	**hue4_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_13 Hue Rotation angle for Q2,CR/CB=0.84 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_4 Hue Rotation angle for Q1,CR/CB=0.84 Legal values: [−22,22].
13320 R0x3408	**15:0**	**0x0000**	**hue5_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_14 Hue Rotation angle for Q2,CR/CB=1.0 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_5 Hue Rotation angle for Q1,CR/CB=1.0 Legal values: [−22,22].
13322 R0x340A	**15:0**	**0x0000**	**hue6_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_15 Hue Rotation angle for Q2,CB/CR=0.84 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_6 Hue Rotation angle for Q1,CB/CR=0.84 Legal values: [−22,22].
13324 R0x340C	**15:0**	**0x0000**	**hue7_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_16 Hue Rotation angle for Q2,CB/CR=0.6 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_7 Hue Rotation angle for Q1,CB/CR=0.6 Legal values: [−22,22].

Table 30. CPIPE YUV PIPE REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13326 R0x340E	**15:0**	**0x0000**	**hue8_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_17 Hue Rotation angle for Q2,CB/CR=0.3 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_8 Hue Rotation angle for Q1,CB/CR=0.3 Legal values: [−22,22].
13328 R0x3410	**15:0**	**0x0000**	**hue9_q1q2 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_18 Hue Rotation angle for Q2,CB/CR=0.02 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_9 Hue Rotation angle for Q1,CB/CR=0.02 Legal values: [−22,22].
13330 R0x3412	**15:0**	**0x0000**	**hue10_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_28 Hue Rotation angle for Q4 CR/CB=0.02 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_19 Hue Rotation angle for Q3 CR/CB=0.02 Legal values: [−22,22].
13332 R0x3414	**15:0**	**0x0000**	**hue11_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_29 Hue Rotation angle for Q4 CR/CB=0.3 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_20 Hue Rotation angle for Q3 CR/CB=0.3 Legal values: [−22,22].
13334 R0x3416	**15:0**	**0x0000**	**hue12_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_30 Hue Rotation angle for Q4 CR/CB=0.6 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_21 Hue Rotation angle for Q3 CR/CB=0.6 Legal values: [−22,22].

Table 30. CPIPE YUV PIPE REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13336 R0x3418	**15:0**	**0x0000**	**hue13_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_31 Hue Rotation angle for Q4 CR/CB=0.84 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_22 Hue Rotation angle for Q3 CR/CB=0.84 Legal values: [−22,22].
13338 R0x341A	**15:0**	**0x0000**	**hue14_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_32 Hue Rotation angle for Q4 CR/CB=1.0 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_23 Hue Rotation angle for Q3 CR/CB=1.0 Legal values: [−22,22].
13340 R0x341C	**15:0**	**0x0000**	**hue15_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_33 Hue Rotation angle for Q4 CB/CR=0.84 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_24 Hue Rotation angle for Q3 CB/CR=0.84 Legal values: [−22,22].
13342 R0x341E	**15:0**	**0x0000**	**hue16_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_34 Hue Rotation angle for Q4 CB/CR=0.6 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_25 Hue Rotation angle for Q3 CB/CR=0.6 Legal values: [−22,22].
13344 R0x3420	**15:0**	**0x0000**	**hue17_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_35 Hue Rotation angle for Q4 CB/CR=0.3 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_26 Hue Rotation angle for Q3 CB/CR=0.3 Legal values: [−22,22].

Table 30. CPIPE YUV PIPE REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13346 R0x3422	**15:0**	**0x0000**	**hue18_q3q4 (R/W)**
	15:14	X	Reserved
	13:8	0x0000	hue_rotation_36 Hue Rotation angle for Q4 CB/CR=0.02 Legal values: [−22,22].
	7:6	X	Reserved
	5:0	0x0000	hue_rotation_27 Hue Rotation angle for Q3 CB/CR=0.02 Legal values: [−22,22].
13348 R0x3424	**15:0**	**0x0000**	**pcr_color_gain1_region_1 (R/W)**
	PCR saturation gain1, region 1 Legal values: [0,15].		
13350 R0x3426	**15:0**	**0x0000**	**pcr_color_gain1_region_10 (R/W)**
	PCR saturation gain1, region 10 Legal values: [0,15].		
13352 R0x3428	**15:0**	**0x0000**	**pcr_color_gain1_region_19 (R/W)**
	PCR saturation gain1, region 19 Legal values: [0,15].		
13354 R0x342A	**15:0**	**0x0000**	**pcr_color_gain1_region_28 (R/W)**
	PCR saturation gain1, region 28 Legal values: [0,15].		
13356 R0x342C	**15:0**	**0x0000**	**pcr_color_gain2_region_2 (R/W)**
	PCR saturation gain2, region 2 Legal values: [0,15].		
13358 R0x342E	**15:0**	**0x0000**	**pcr_color_gain2_region_11 (R/W)**
	PCR saturation gain2, region 11 Legal values: [0,15].		
13360 R0x3430	**15:0**	**0x0000**	**pcr_color_gain2_region_20 (R/W)**
	PCR saturation gain2, region 20 Legal values: [0,15].		
13362 R0x3432	**15:0**	**0x0000**	**pcr_color_gain2_region_29 (R/W)**
	PCR saturation gain2, region 29 Legal values: [0,15].		
13364 R0x3434	**15:0**	**0x0000**	**pcr_color_gain3_region_3 (R/W)**
	PCR saturation gain3, region 3 Legal values: [0,15].		
13366 R0x3436	**15:0**	**0x0000**	**pcr_color_gain3_region_12 (R/W)**
	PCR saturation gain3, region 12 Legal values: [0,15].		
13368 R0x3438	**15:0**	**0x0000**	**pcr_color_gain3_region_21 (R/W)**
	PCR saturation gain3, region 21 Legal values: [0,15].		
13370 R0x343A	**15:0**	**0x0000**	**pcr_color_gain3_region_30 (R/W)**
	PCR saturation gain3, region 30 Legal values: [0,15].		
13372 R0x343C	**15:0**	**0x0000**	**pcr_color_gain4_region_4 (R/W)**
	PCR saturation gain4, region 4 Legal values: [0,15].		

Table 30. CPIPE YUV PIPE REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13374 R0x343E	15:0	0x0000	pcr_color_gain4_region_13 (R/W)
	PCR saturation gain4 region 13 Legal values: [0,15].		
13376 R0x3440	15:0	0x0000	pcr_color_gain4_region_22 (R/W)
	PCR saturation gain4, region 22 Legal values: [0,15].		
13378 R0x3442	15:0	0x0000	pcr_color_gain4_region_31 (R/W)
	PCR saturation gain4, region 31 Legal values: [0,15].		
13380 R0x3444	15:0	0x0000	pcr_color_gain5_region_5 (R/W)
	PCR saturation gain5, region 5 Legal values: [0,15].		
13382 R0x3446	15:0	0x0000	pcr_color_gain5_region_14 (R/W)
	PCR saturation gain5 region 14 Legal values: [0,15].		
13384 R0x3448	15:0	0x0000	pcr_color_gain5_region_23 (R/W)
	PCR saturation gain5, region 23 Legal values: [0,15].		
13386 R0x344A	15:0	0x0000	pcr_color_gain5_region_32 (R/W)
	PCR saturation gain5, region 32 Legal values: [0,15].		
13388 R0x344C	15:0	0x0000	pcr_color_gain6_region_6 (R/W)
	PCR saturation gain6, region 6 Legal values: [0,15].		
13390 R0x344E	15:0	0x0000	pcr_color_gain6_region_15 (R/W)
	PCR saturation gain6 region 15 Legal values: [0,15].		
13392 R0x3450	15:0	0x0000	pcr_color_gain6_region_24 (R/W)
	PCR saturation gain6, region 24 Legal values: [0,15].		
13394 R0x3452	15:0	0x0000	pcr_color_gain6_region_33 (R/W)
	PCR saturation gain6, region 33 Legal values: [0,15].		
13396 R0x3454	15:0	0x0000	pcr_color_gain7_region_7 (R/W)
	PCR saturation gain7, region 7 Legal values: [0,15].		
13398 R0x3456	15:0	0x0000	pcr_color_gain7_region_16 (R/W)
	PCR saturation gain7 region 16 Legal values: [0,15].		
13400 R0x3458	15:0	0x0000	pcr_color_gain7_region_25 (R/W)
	PCR saturation gain7, region 25 Legal values: [0,15].		
13402 R0x345A	15:0	0x0000	pcr_color_gain7_region_34 (R/W)
	PCR saturation gain7, region 34 Legal values: [0,15].		
13404 R0x345C	15:0	0x0000	pcr_color_gain8_region_8 (R/W)
	PCR saturation gain8, region 8 Legal values: [0,15].		

Table 30. CPIPE YUV PIPE REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13406 R0x345E	15:0	0x0000	pcr_color_gain8_region_17 (R/W)
	PCR saturation gain8 region 17 Legal values: [0,15].		
13408 R0x3460	15:0	0x0000	pcr_color_gain8_region_26 (R/W)
	PCR saturation gain8, region 26 Legal values: [0,15].		
13410 R0x3462	15:0	0x0000	pcr_color_gain8_region_35 (R/W)
	PCR saturation gain8, region 35 Legal values: [0,15].		
13412 R0x3464	15:0	0x0000	pcr_color_gain9_region_9 (R/W)
	PCR saturation gain9, region 9 Legal values: [0,15].		
13414 R0x3466	15:0	0x0000	pcr_color_gain9_region_18 (R/W)
	PCR saturation gain9 region 18 Legal values: [0,15].		
13416 R0x3468	15:0	0x0000	pcr_color_gain9_region_27 (R/W)
	PCR saturation gain9, region 27 Legal values: [0,15].		
13418 R0x346A	15:0	0x0000	pcr_color_gain9_region_36 (R/W)
	PCR saturation gain9, region 36 Legal values: [0,15].		

CPIPE Reconstruct Register Descriptions

Table 31. CPIPE RECONSTRUCT REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13824 R0x3600	15:0	0x0010	p_g1_p0q0 (R/W)
	P0 coefficients for Green1. Legal values: [0, 65535].		
13826 R0x3602	15:0	0x0000	p_g1_p0q1 (R/W)
	P0 coefficients for Green1. Legal values: [0, 65535].		
13828 R0x3604	15:0	0x0000	p_g1_p0q2 (R/W)
	P0 coefficients for Green1. Legal values: [0, 65535].		
13830 R0x3606	15:0	0x0000	p_g1_p0q3 (R/W)
	P0 coefficients for Green1. Legal values: [0, 65535].		
13832 R0x3608	15:0	0x0000	p_g1_p0q4 (R/W)
	P0 coefficients for Green1. Legal values: [0, 65535].		
13834 R0x360A	15:0	0x0010	p_r_p0q0 (R/W)
	P0 coefficients for Red. Legal values: [0, 65535].		

Table 31. CPIPE RECONSTRUCT REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13836 R0x360C	15:0	0x0000	p_r_p0q1 (R/W)
	P0 coefficients for Red. Legal values: [0, 65535].		
13838 R0x360E	15:0	0x0000	p_r_p0q2 (R/W)
	P0 coefficients for Red. Legal values: [0, 65535].		
13840 R0x3610	15:0	0x0000	p_r_p0q3 (R/W)
	P0 coefficients for Red. Legal values: [0, 65535].		
13842 R0x3612	15:0	0x0000	p_r_p0q4 (R/W)
	P0 coefficients for Red. Legal values: [0, 65535].		
13844 R0x3614	15:0	0x0010	p_b_p0q0 (R/W)
	P0 coefficients for Blue. Legal values: [0, 65535].		
13846 R0x3616	15:0	0x0000	p_b_p0q1 (R/W)
	P0 coefficients for Blue. Legal values: [0, 65535].		
13848 R0x3618	15:0	0x0000	p_b_p0q2 (R/W)
	P0 coefficients for Blue. Legal values: [0, 65535].		
13850 R0x361A	15:0	0x0000	p_b_p0q3 (R/W)
	P0 coefficients for Blue. Legal values: [0, 65535].		
13852 R0x361C	15:0	0x0000	p_b_p0q4 (R/W)
	P0 coefficients for Blue. Legal values: [0, 65535].		
13854 R0x361E	15:0	0x0010	p_g2_p0q0 (R/W)
	P0 coefficients for Green2. Legal values: [0, 65535].		
13856 R0x3620	15:0	0x0000	p_g2_p0q1 (R/W)
	P0 coefficients for Green2. Legal values: [0, 65535].		
13858 R0x3622	15:0	0x0000	p_g2_p0q2 (R/W)
	P0 coefficients for Green2. Legal values: [0, 65535].		
13860 R0x3624	15:0	0x0000	p_g2_p0q3 (R/W)
	P0 coefficients for Green2. Legal values: [0, 65535].		
13862 R0x3626	15:0	0x0000	p_g2_p0q4 (R/W)
	P0 coefficients for Green2. Legal values: [0, 65535].		
13864 R0x3628	15:0	0x0000	p_g1_p1q0 (R/W)
	P1 coefficients for Green1. Legal values: [0, 65535].		
13866 R0x362A	15:0	0x0000	p_g1_p1q1 (R/W)
	P1 coefficients for Green1. Legal values: [0, 65535].		

Table 31. CPIPE RECONSTRUCT REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13868 R0x362C	15:0	0x0000	p_g1_p1q2 (R/W)
	P1 coefficients for Green1. Legal values: [0, 65535].		
13870 R0x362E	15:0	0x0000	p_g1_p1q3 (R/W)
	P1 coefficients for Green1. Legal values: [0, 65535].		
13872 R0x3630	15:0	0x0000	p_g1_p1q4 (R/W)
	P1 coefficients for Green1. Legal values: [0, 65535].		
13874 R0x3632	15:0	0x0000	p_r_p1q0 (R/W)
	P1 coefficients for Red. Legal values: [0, 65535].		
13876 R0x3634	15:0	0x0000	p_r_p1q1 (R/W)
	P1 coefficients for Red. Legal values: [0, 65535].		
13878 R0x3636	15:0	0x0000	p_r_p1q2 (R/W)
	P1 coefficients for Red. Legal values: [0, 65535].		
13880 R0x3638	15:0	0x0000	p_r_p1q3 (R/W)
	P1 coefficients for Red. Legal values: [0, 65535].		
13882 R0x363A	15:0	0x0000	p_r_p1q4 (R/W)
	P1 coefficients for Red. Legal values: [0, 65535].		
13884 R0x363C	15:0	0x0000	p_b_p1q0 (R/W)
	P1 coefficients for Blue. Legal values: [0, 65535].		
13886 R0x363E	15:0	0x0000	p_b_p1q1 (R/W)
	P1 coefficients for Blue. Legal values: [0, 65535].		
13888 R0x3640	15:0	0x0000	p_b_p1q2 (R/W)
	P1 coefficients for Blue. Legal values: [0, 65535].		
13890 R0x3642	15:0	0x0000	p_b_p1q3 (R/W)
	P1 coefficients for Blue. Legal values: [0, 65535].		
13892 R0x3644	15:0	0x0000	p_b_p1q4 (R/W)
	P1 coefficients for Blue. Legal values: [0, 65535].		
13894 R0x3646	15:0	0x0000	p_g2_p1q0 (R/W)
	P1 coefficients for Green2. Legal values: [0, 65535].		
13896 R0x3648	15:0	0x0000	p_g2_p1q1 (R/W)
	P1 coefficients for Green2. Legal values: [0, 65535].		
13898 R0x364A	15:0	0x0000	p_g2_p1q2 (R/W)
	P1 coefficients for Green2. Legal values: [0, 65535].		

Table 31. CPIPE RECONSTRUCT REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13900 R0x364C	15:0	0x0000	p_g2_p1q3 (R/W)
	P1 coefficients for Green2. Legal values: [0, 65535].		
13902 R0x364E	15:0	0x0000	p_g2_p1q4 (R/W)
	P1 coefficients for Green2. Legal values: [0, 65535].		
13904 R0x3650	15:0	0x0000	p_g1_p2q0 (R/W)
	P2 coefficients for Green1. Legal values: [0, 65535].		
13906 R0x3652	15:0	0x0000	p_g1_p2q1 (R/W)
	P2 coefficients for Green1. Legal values: [0, 65535].		
13908 R0x3654	15:0	0x0000	p_g1_p2q2 (R/W)
	P2 coefficients for Green1. Legal values: [0, 65535].		
13910 R0x3656	15:0	0x0000	p_g1_p2q3 (R/W)
	P2 coefficients for Green1. Legal values: [0, 65535].		
13912 R0x3658	15:0	0x0000	p_g1_p2q4 (R/W)
	P2 coefficients for Green1. Legal values: [0, 65535].		
13914 R0x365A	15:0	0x0000	p_r_p2q0 (R/W)
	P2 coefficients for Red. Legal values: [0, 65535].		
13916 R0x365C	15:0	0x0000	p_r_p2q1 (R/W)
	P2 coefficients for Red. Legal values: [0, 65535].		
13918 R0x365E	15:0	0x0000	p_r_p2q2 (R/W)
	P2 coefficients for Red. Legal values: [0, 65535].		
13920 R0x3660	15:0	0x0000	p_r_p2q3 (R/W)
	P2 coefficients for Red. Legal values: [0, 65535].		
13922 R0x3662	15:0	0x0000	p_r_p2q4 (R/W)
	P2 coefficients for Red. Legal values: [0, 65535].		
13924 R0x3664	15:0	0x0000	p_b_p2q0 (R/W)
	P2 coefficients for Blue. Legal values: [0, 65535].		
13926 R0x3666	15:0	0x0000	p_b_p2q1 (R/W)
	P2 coefficients for Blue. Legal values: [0, 65535].		
13928 R0x3668	15:0	0x0000	p_b_p2q2 (R/W)
	P2 coefficients for Blue. Legal values: [0, 65535].		
13930 R0x366A	15:0	0x0000	p_b_p2q3 (R/W)
	P2 coefficients for Blue. Legal values: [0, 65535].		

Table 31. CPIPE RECONSTRUCT REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13932 R0x366C	15:0	0x0000	p_b_p2q4 (R/W)
	P2 coefficients for Blue. Legal values: [0, 65535].		
13934 R0x366E	15:0	0x0000	p_g2_p2q0 (R/W)
	P2 coefficients for Green2. Legal values: [0, 65535].		
13936 R0x3670	15:0	0x0000	p_g2_p2q1 (R/W)
	P2 coefficients for Green2. Legal values: [0, 65535].		
13938 R0x3672	15:0	0x0000	p_g2_p2q2 (R/W)
	P2 coefficients for Green2. Legal values: [0, 65535].		
13940 R0x3674	15:0	0x0000	p_g2_p2q3 (R/W)
	P2 coefficients for Green2. Legal values: [0, 65535].		
13942 R0x3676	15:0	0x0000	p_g2_p2q4 (R/W)
	P2 coefficients for Green2. Legal values: [0, 65535].		
13944 R0x3678	15:0	0x0000	p_g1_p3q0 (R/W)
	P3 coefficients for Green1. Legal values: [0, 65535].		
13946 R0x367A	15:0	0x0000	p_g1_p3q1 (R/W)
	P3 coefficients for Green1. Legal values: [0, 65535].		
13948 R0x367C	15:0	0x0000	p_g1_p3q2 (R/W)
	P3 coefficients for Green1. Legal values: [0, 65535].		
13950 R0x367E	15:0	0x0000	p_g1_p3q3 (R/W)
	P3 coefficients for Green1. Legal values: [0, 65535].		
13952 R0x3680	15:0	0x0000	p_g1_p3q4 (R/W)
	P3 coefficients for Green1. Legal values: [0, 65535].		
13954 R0x3682	15:0	0x0000	p_r_p3q0 (R/W)
	P3 coefficients for Red. Legal values: [0, 65535].		
13956 R0x3684	15:0	0x0000	p_r_p3q1 (R/W)
	P3 coefficients for Red. Legal values: [0, 65535].		
13958 R0x3686	15:0	0x0000	p_r_p3q2 (R/W)
	P3 coefficients for Red. Legal values: [0, 65535].		
13960 R0x3688	15:0	0x0000	p_r_p3q3 (R/W)
	P3 coefficients for Red. Legal values: [0, 65535].		
13962 R0x368A	15:0	0x0000	p_r_p3q4 (R/W)
	P3 coefficients for Red. Legal values: [0, 65535].		

Table 31. CPIPE RECONSTRUCT REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13964 R0x368C	15:0	0x0000	p_b_p3q0 (R/W)
	P3 coefficients for Blue. Legal values: [0, 65535].		
13966 R0x368E	15:0	0x0000	p_b_p3q1 (R/W)
	P3 coefficients for Blue. Legal values: [0, 65535].		
13968 R0x3690	15:0	0x0000	p_b_p3q2 (R/W)
	P3 coefficients for Blue. Legal values: [0, 65535].		
13970 R0x3692	15:0	0x0000	p_b_p3q3 (R/W)
	P3 coefficients for Blue. Legal values: [0, 65535].		
13972 R0x3694	15:0	0x0000	p_b_p3q4 (R/W)
	P3 coefficients for Blue. Legal values: [0, 65535].		
13974 R0x3696	15:0	0x0000	p_g2_p3q0 (R/W)
	P3 coefficients for Green2. Legal values: [0, 65535].		
13976 R0x3698	15:0	0x0000	p_g2_p3q1 (R/W)
	P3 coefficients for Green2. Legal values: [0, 65535].		
13978 R0x369A	15:0	0x0000	p_g2_p3q2 (R/W)
	P3 coefficients for Green2. Legal values: [0, 65535].		
13980 R0x369C	15:0	0x0000	p_g2_p3q3 (R/W)
	P3 coefficients for Green2. Legal values: [0, 65535].		
13982 R0x369E	15:0	0x0000	p_g2_p3q4 (R/W)
	P3 coefficients for Green2. Legal values: [0, 65535].		
13984 R0x36A0	15:0	0x0000	p_g1_p4q0 (R/W)
	P4 coefficients for Green1. Legal values: [0, 65535].		
13986 R0x36A2	15:0	0x0000	p_g1_p4q1 (R/W)
	P4 coefficients for Green1. Legal values: [0, 65535].		
13988 R0x36A4	15:0	0x0000	p_g1_p4q2 (R/W)
	P4 coefficients for Green1. Legal values: [0, 65535].		
13990 R0x36A6	15:0	0x0000	p_g1_p4q3 (R/W)
	P4 coefficients for Green1. Legal values: [0, 65535].		
13992 R0x36A8	15:0	0x0000	p_g1_p4q4 (R/W)
	P4 coefficients for Green1. Legal values: [0, 65535].		
13994 R0x36AA	15:0	0x0000	p_r_p4q0 (R/W)
	P4 coefficients for Red. Legal values: [0, 65535].		

Table 31. CPIPE RECONSTRUCT REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
13996 R0x36AC	15:0	0x0000	p_r_p4q1 (R/W)
	P4 coefficients for Red. Legal values: [0, 65535].		
13998 R0x36AE	15:0	0x0000	p_r_p4q2 (R/W)
	P4 coefficients for Red. Legal values: [0, 65535].		
14000 R0x36B0	15:0	0x0000	p_r_p4q3 (R/W)
	P4 coefficients for Red. Legal values: [0, 65535].		
14002 R0x36B2	15:0	0x0000	p_r_p4q4 (R/W)
	P4 coefficients for Red. Legal values: [0, 65535].		
14004 R0x36B4	15:0	0x0000	p_b_p4q0 (R/W)
	P4 coefficients for Blue. Legal values: [0, 65535].		
14006 R0x36B6	15:0	0x0000	p_b_p4q1 (R/W)
	P4 coefficients for Blue. Legal values: [0, 65535].		
14008 R0x36B8	15:0	0x0000	p_b_p4q2 (R/W)
	P4 coefficients for Blue. Legal values: [0, 65535].		
14010 R0x36BA	15:0	0x0000	p_b_p4q3 (R/W)
	P4 coefficients for Blue. Legal values: [0, 65535].		
14012 R0x36BC	15:0	0x0000	p_b_p4q4 (R/W)
	P4 coefficients for Blue. Legal values: [0, 65535].		
14014 R0x36BE	15:0	0x0000	p_g2_p4q0 (R/W)
	P4 coefficients for Green2. Legal values: [0, 65535].		
14016 R0x36C0	15:0	0x0000	p_g2_p4q1 (R/W)
	P4 coefficients for Green2. Legal values: [0, 65535].		
14018 R0x36C2	15:0	0x0000	p_g2_p4q2 (R/W)
	P4 coefficients for Green2. Legal values: [0, 65535].		
14020 R0x36C4	15:0	0x0000	p_g2_p4q3 (R/W)
	P4 coefficients for Green2. Legal values: [0, 65535].		
14022 R0x36C6	15:0	0x0000	p_g2_p4q4 (R/W)
	P4 coefficients for Green2. Legal values: [0, 65535].		
14024 R0x36C8	15:0	0x01E4	center_row (R/W)
	Center Row Legal values: [0, 1023].		
14026 R0x36CA	15:0	0x0284	center_column (R/W)
	Center Column Legal values: [0, 2047].		

XDMA Register Descriptions

Table 32. XDMA REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
2434 R0x0982	**15:0**	**0x0000**	**access_ctl_stat (R/W)**
	15:8	X	Reserved
	7:6	0x0000	phy_region 00: Physical access to Patch RAM 01: UNDEFINED 10: Reserved 11: Reserved
	5	X	Reserved
	4	RO	byte_access_state Read−only copy of logical_byte_access (in Logical Access state) or physical_byte_access (in Physical Access state) 1: Byte Access state 0: Word Access state (2 bytes) The value of this field is UNDEFINED after reset. Read−only.
	3:2	RO	physical_access_state 11: Physical Access state 10: Logical Access state 0x: Indeterminate (DMA address is invalid). The DMA address is invalid if Logical Access state is established but the tabptr SFR has not been initialised. Read−only.
	1	RO	upper_32k_access_state Physical address[15] for current access. In Logical Access state (physical_access_state=10), this bit provides debug information: after at least one data access has been performed, this bit represents the physical address[15] of the variables base for the current driver number. In Physical Access state (physical_access_state=11), this bit is a read−only copy of en_upper_32k_phy_access. The value of this field is UNDEFINED after reset. Read−only.
	0	0x0000	en_upper_32k_phy_access This bit provides physical address[15] for physical address accesses. Physical address[14:0] are provided by R0x098A
	Controls the access and conveys access status		
2442 R0x098A	**15:0**	**0x0000**	**physical_address_access (R/W)**
	15	0x0000	physical_byte_access Select byte access for indirect data accesses in Physical Access state. In Physical Access state this bit affects the behavior of Indirect data accesses (reads and writes to the mcu_variable_dataN registers). This bit has no effect on the behavior of Direct data accesses (reads and writes by the host to addresses above 0x7FFF). 1: Byte Access 0: Word Access (2 bytes) The value of this field is UNDEFINED after reset.
	14:0	0x0000	physical_address physical_address[14:0] for current access. physical_address[15] is set by R0x0982[0]. The programmed 16−bit address specifies an offset from the start of the region specified by phy_region (R0x0982[7:6]). The value of this field is UNDEFINED after reset. Legal values: [0, 32767].
	Address of physical access; Used for Patch RAM uploads. A write to this address establishes the Physical Access state (See R0x0982[2]). When the Logical Access state is established, a read from this register and from R0x0982[1] provides debug information: after at least one data access has been performed, this bit represents the physical address of the variables base for the current driver number.		

Table 32. XDMA REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
2446 R0x098E	**15:0**	**0x0000**	**logical_address_access (R/W)**
	15	0x0000	logical_byte_access Select byte access for indirect data accesses in Logical Access state. In Logical Access state this bit affects the behavior of Indirect data accesses (reads and writes to the mcu_variable_dataN registers). This bit has no effect on the behavior of Direct data accesses (reads and writes by the host to addresses above 0x7FFF). 1: Byte Access 0: Word Access (2 bytes) The value of this field is UNDEFINED after reset.
	14:10	0x0000	logical_access_drv_num Address of logical access driver number − logical_address[14:10]. Base address of this driver's variables can be obtained by adding 2*logical_access_drv_num to the value of the tabptr SFR. Physical address of re−directed location can be obtained by adding this offset to the SFR 0x50 return value. The value of this field is UNDEFINED after reset. Legal values: [0, 31].
	9:0	0x0000	logical_access_offset Address of logical access offset − logical_address[9:0]. Physical address can be obtained by adding this offset to the base address of the selected driver's variables (the driver is selected by logical_access_drv_num). The value of this field is UNDEFINED after reset. Legal values: [0, 1023].
	Address of logical access; Used for camera control (i.e. register/variable updates) by user. A write to this address establishes the Logical Access state (See R0x0982[2]).		
2448 R0x0990	**15:0**	**0x0000**	**mcu_variable_data0 (R/W)**
	DMA word 0 (Indirect data access) Legal values: [0, 65535].		
2450 R0x0992	**15:0**	**0x0000**	**mcu_variable_data1 (R/W)**
	DMA word 1 (Indirect data access) Legal values: [0, 65535].		
2452 R0x0994	**15:0**	**0x0000**	**mcu_variable_data2 (R/W)**
	DMA word 2 (Indirect data access) Legal values: [0, 65535].		
2454 R0x0996	**15:0**	**0x0000**	**mcu_variable_data3 (R/W)**
	DMA word 3 (Indirect data access) Legal values: [0, 65535].		
2456 R0x0998	**15:0**	**0x0000**	**mcu_variable_data4 (R/W)**
	DMA word 4 (Indirect data access) Legal values: [0, 65535].		
2458 R0x099A	**15:0**	**0x0000**	**mcu_variable_data5 (R/W)**
	DMA word 5 (Indirect data access) Legal values: [0, 65535].		
2460 R0x099C	**15:0**	**0x0000**	**mcu_variable_data6 (R/W)**
	DMA word 6 (Indirect data access) Legal values: [0, 65535].		
2462 R0x099E	**15:0**	**0x0000**	**mcu_variable_data7 (R/W)**
	DMA word 7 (Indirect data access) Legal values: [0, 65535].		

TX_SS Register Descriptions

Table 33. TX_SS REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
15364 R0x3C04	**15:0**	**0x0000**	**vdac_ctrl_1 (R/W)**
	15:7	X	Reserved
	6	RO	Reserved
	5:0	0x0000	dac_gain Video programmable gain value Legal values: [0, 63].
	Video DAC calibration (1)		
15492 R0x3C84	**15:0**	**0x0606**	**tx_frontporch_backporch (R/W)**
	15:8	0x0006	tx_back_porch Back porch of frame valid. Legal values: [0, 255].
	7:0	0x0006	tx_front_porch Front porch of frame valid. Legal values: [0, 255].

OTPM Register Descriptions

Table 34. OTPM REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
14336 R0x3800	**15:0**	**0x0000**	**otpm_data_0 (R/W)**
	Data for OTPM automatic read sequences. After an OTPM automatic read sequence, read data is presented in the OTPM_DATA_* registers. These registers cannot be accessed when the system is in soft standby (writes will be ignored and reads will return 0). Legal values: [0,65535].		
14338 R0x3802	**15:0**	**0x0000**	**otpm_data_1 (R/W)**
	Legal values: [0,65535].		
14340 R0x3804	**15:0**	**0x0000**	**otpm_data_2 (R/W)**
	Legal values: [0,65535].		
14342 R0x3806	**15:0**	**0x0000**	**otpm_data_3 (R/W)**
	Legal values: [0,65535].		
14344 R0x3808	**15:0**	**0x0000**	**otpm_data_4 (R/W)**
	Legal values: [0,65535].		
14346 R0x380A	**15:0**	**0x0000**	**otpm_data_5 (R/W)**
	Legal values: [0,65535].		
14348 R0x380C	**15:0**	**0x0000**	**otpm_data_6 (R/W)**
	Legal values: [0,65535].		
14350 R0x380E	**15:0**	**0x0000**	**otpm_data_7 (R/W)**
	Legal values: [0,65535].		

Table 34. OTPM REGISTER DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
14592 R0x3900	**15:0**	**0x0000**	**otpm_control (R/W)**
	15:11	X	Reserved
	10	0x0000	otpm_enable_standby OTPM standby enable. When this bit is 0, the ”standby” signal will never be asserted to the HV switch. When this bit is 1, the ”standby” signal will be controlled automatically to the HV switch: negated when an OTPM read or write operation is being performed, and asserted otherwise. Asserting the ”standby” signal to the HV switch connects the internal vcmn signal to gndio preventing leakage though any programmed anti−fuses. Legal values: [0,1].
	9	0x0000	otpm_single_record_only OTPM single record only. 1: Automatic read sequence will end after one record has been read from OTPM. 0: Automatic read sequence will end after all records (of specicied record type) have been read from OTPM. The total size of the records read must not exceed the space available; the total size of the otpm_data_* registers. Legal values: [0,1].
	8	0x0000	otpm_auto_rd_start_next Automatic read start next. When bypass_record (in otpm_expr) = 0, and single_record_only = 1, determine the start address for an automatic read sequence triggered by auto_rd_start: 0: read first record that matches (search from start of OTPM). 1: read next record that matches (search from current location in OTPM). Legal values: [0,1].
	7	X	Reserved
	6	RO	otpm_auto_rd_success Indicates whether the automatic read sequence was successful. Read−only. Legal values: [0,1].
	5	RO	otpm_auto_rd_end Indicates whether the automatic read sequence has finished. Read−only. Legal values: [0,1].
	4	0x0000	otpm_auto_rd_start Trigger sOTPM automatic read sequence. bypass_record (in otpm_expr) = 0: Search for the next record of a type specified by the otpm_record register. If the record is found, its payload can be read from the otpm_data* registers. When this bit is set and auto_rd_start_next=0, the search starts at the first location in the OTPM. When this bit is set and auto_rd_start_next=1, the search starts at the current location in the OTPM (the location following the record most recently read). bypass_record = 1: Read data from OTPM. The OTPM address at which to start the read is taken from the otpm_manual_addr register. The length of the data to read is taken from the otpm_record register. The data can be read from the otpm_data* registers. Legal values: [0,1].
	3	X	Reserved
	Legal values: [0,1911].		

Table 34. OTPM REGISTER DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
	2	RO	otpm_auto_wr_success Indicates whether the automatic write sequence was successful. Read−only. Legal values: [0,1].
	1	RO	otpm_auto_wr_end Indicates whether the automatic write sequence has finished. Read−only. Legal values: [0,1].
	0	0x0000	otpm_auto_wr_start Trigger OTPM automatic write sequence. The high voltage must be available on the high voltage pad before the write sequence is triggered. bypass_record (in otpm_expr) = 0: The OTPM address at which to start the write is determined automatically by searching the existing OTPM contents for the next free location. The record type and length is taken from the otpm_record register. The record payload (data to write) is taken from the otpm_data* registers. bypass_record=1: The OTPM address at which to start the write is taken from the otpm_manual_addr register. The length of the data to program is taken from the otpm_record register. The data to write is taken from the otpm_data* registers. Legal values: [0,1].
	Legal values: [0,1911].		
14594 R0x3902	**15:0**	**0x0200**	**otpm_record (R/W)**
	15:8	0x0002	otpm_record_type OTPM record type. Currently supported types are x02 − Default registers; x2n − Register sets. When searching for a record, defines the type of the record to be searched for. Legal values: [0,255].
	7:0	0x0000	otpm_record_length OTPM record length. Length of record payload in 16−bit words (between 1 and 128). Ignored when searching for a record. Legal values: [0,128].
	Legal values: [0,65535].		

Monitor Variable Descriptions

Table 35. MONITOR VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x8000 VAR(0x00, 0x0000)	**15:0**	**0x0001**	**mon_major_version (RO)**
	Firmware major version. This value is unsigned. This is a constant value.		
0x8002 VAR(0x00, 0x0002)	**15:0**	**0x0003**	**mon_minor_version (RO)**
	Firmware minor version. This value is unsigned. This is a constant value.		
0x8004 VAR(0x00, 0x0004)	**15:0**	**0x7003**	**mon_release_version (RO)**
	Firmware build version. This value is unsigned. This is a constant value.		
0x8006 VAR(0x00, 0x0006)	**15:0**	**0x0000**	**mon_heartbeat (RO)**
	Frame counter − increments every frame while the device is in the SYS_STATE_STREAMING state. Note: The counter will continuously wrap back to zero and continue counting. This value is unsigned. Updates during Vertical Blanking.		

Table 35. MONITOR VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x8014 VAR(0x00, 0x0014)	**15:0**	**0x0000**	**mon_watchdog_count (RO)**
	Watchdog Monitor activity counter. The counter will increment every five seconds, prior to the Watchdog Monitor's status checks. The host should regularly read the counter value and ensure that it is incrementing. The counter will continuously wrap back to zero and continue counting. The counter is frozen when device is in hard− or soft−standby. This value is unsigned. Updates immediately (unsynchronized).		
0x8016 VAR(0x00, 0x0016)	**15:0**	**0x0000**	**mon_watchdog_status (RO)**
	7	0x00	Reserved
	6	0x00	Reserved
	5	0x00	Reserved
	4	0x00	Reserved
	3	0x00	Reserved
	2	0x00	Reserved
	1	0x00	Reserved
	0	0x00	Reserved
	Watchdog Monitor status indicator. A zero value indicates that the Watchdog has not detected any failures. A non−zero value indicates a failure has occurred and the host should take corrective action. This value is unsigned. Updates immediately (unsynchronized).		

Sequencer Variable Descriptions

Table 36. SEQUENCER VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x8406 VAR(0x01, 0x0006)	**7:0**	**0x00**	**seq_error_code (RO)**
	Indicates the status of the last SEQ_REFRESH command. Possible values are: 0: ENOERR: command completed successfully. 9: EBUSY: The AP0100CS is busy and cannot execute the command at this time. 12: EINVAL: There is an error in the value of one of the variables so the command cannot run. 14: ERANGE: One of the variables is set to out of its allowed range for this configuration so the command cannot run. This value is unsigned. Updates after a Refresh command.		

KeepSync Manager Variable Descriptions

Table 37. KEEPSYNC MANAGER VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x8C01 VAR(0x03, 0x0001)	**7:0**	**0x00**	**keepsyncmgr_control (R/W)**
	7:1	X	Reserved
	0	0x00	keepsyncmgr_control_enable_frame_sync Controls if the external FRAME_SYNC pin is enabled: 0: FRAME_SYNC pin is disabled. 1: FRAME_SYNC pin is enabled. This value is unsigned. Changes take effect after a Change−Config command.
	KeepSync Manager control flags. This value is unsigned. Changes take effect immediately (unsynchronized).		

NTSC Variable Descriptions

Table 38. NTSC VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x9400 VAR(0x05, 0x0000)	**15:0**	**0x001C**	**ntsc_interlaced_output_format_yuv (R/W)**
	15:11	X	Reserved
	10:9	RO	Reserved
	8	0x0000	ntsc_interlaced_output_format_yuv_mono_enable Enable monochrome output: 0: Monochrome disabled. 1: Monochrome enabled. This value is unsigned. Changes take effect after a Change−Config command.
	7	RO	Reserved
	6:5	RO	Reserved
	4	RO	Reserved
	3	RO	Reserved
	2	RO	Reserved
	1:0	RO	Reserved
	Output format YUV control flags. This value is unsigned. Changes take effect after a Change−Config command.		
0x9403 VAR(0x05, 0x0003)	**7:0**	**0x10**	**ntsc_interlaced_output_y_offset (R/W)**
	Pedestal control. This value is unsigned. Changes take effect after a Change−Config command.		
0x9404 VAR(0x05, 0x0004)	**7:0**	**0x3C**	**ntsc_aet_flicker_freq_hz (R/W)**
	The desired flicker avoidance frequency in Hertz (50Hz or 60Hz) for NTSC operation. This value is unsigned. Changes take effect after a Change−Config command.		

Table 38. NTSC VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x9408 VAR(0x05, 0x0008)	**15:0**	**0x0082**	**ntsc_interlaced_port_parallel_control (R/W)**
	15:12	X	Reserved
	11:10	RO	Reserved
	9	RO	Reserved
	8	RO	Reserved
	7	RO	Reserved
	6	0x00	ntsc_interlaced_port_parallel_pixclk_invert Invert output pixel clock in NTSC mode: 0: pixel clock not inverted. 1: pixel clock inverted. This value is unsigned. Changes take effect after a Change−Config command.
	5	0x00	ntsc_interlaced_port_parallel_fv_lv_enable Enable the FV and LV strobes in NTSC mode: 0: FV/LV strobes disabled. 1: FV/LV strobes enabled. This value is unsigned. Changes take effect after a Change−Config command.
	4	0x00	ntsc_interlaced_port_parallel_pixclk_gate_on Control pixel clock gating in NTSC mode: 0: pixel clock free−runs. 1: pixel clock gated (only runs when FV/LV asserted). This value is unsigned. Changes take effect after a Change−Config command.
	3	X	Reserved
	2:1	RO	Reserved
	0	0x00	ntsc_interlaced_port_parallel_enable Enable the parallel port for NTSC mode: 0: Port disabled. 1: Port enabled. This value is unsigned. Changes take effect after a Change−Config command.
	Parallel port control (bitfield). This value is unsigned. Changes take effect after a Change−Config command.		

Table 38. NTSC VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x940A VAR(0x05, 0x000A)	**15:0**	**0x0001**	**ntsc_interlaced_port_composite_control (R/W)**
	15:3	X	Reserved
	2	0x00	ntsc_interlaced_port_composite_enable_pedestal Enables the pedestal for NTSC mode: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect after a Change−Config command.
	1	0x00	ntsc_interlaced_port_composite_enable_bw Enable monochrome (black and white) for NTSC mode: 0: Color. 1: Monochrome. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	ntsc_interlaced_port_composite_enable Enable the composite port for NTSC mode: 0: Port disabled. 1: Port enabled. This value is unsigned. Changes take effect after a Change−Config command.
	Composite port control (bitfield). This value is unsigned. Changes take effect after a Change−Config command.		
0x940C VAR(0x05, 0x000C)	**15:0**	**0xFEC0**	**ntsc_interlaced_port_composite_burst_cb (R/W)**
	Controls the peak−to−peak amplitude of the NTSC colorburst (in combination with ntsc_interlaced_port_composite_burst_cr). By default this value is −320. If the color burst needs to be adjusted this value could need to be multiplied by the adjustment factor (1.5x adjustment would need a value of −480) This value is signed 2's complement. Changes take effect after a Change−Config command.		
0x940E VAR(0x05, 0x000E)	**15:0**	**0x0000**	**ntsc_interlaced_port_composite_burst_cr (R/W)**
	Controls the peak−to−peak amplitude of the NTSC colorburst (in combination with ntsc_interlaced_port_composite_burst_cb). If the color burst needs to be adjusted this value could need to be multiplied by the adjustment factor (1.5x adjustment would need a value of −480) This value is signed 2's complement. Changes take effect after a Change−Config command.		
0x9410 VAR(0x05, 0x0010)	**15:0**	**0x0000**	**ntsc_interlaced_port_composite_sub_phase_offset (R/W)**
	Controls up to +/−90 degrees adjustment of the subcarrier reference phase for colorburst reference generation and chroma modulation, where 90 degrees = −256. Note: If more phase is required, then negating ntsc_interlaced_port_composite_burst_cb/cr would increase the phase by 180 degrees, allowing the full range to be achieved. This value is signed 2's complement. Changes take effect after a Change−Config command.		
0x9412 VAR(0x05, 0x0012)	**15:0**	**0x02C6**	**ntsc_interlaced_port_composite_active_pixels (R/W)**
	Controls the number of active pixels output by the composite port during the active line time. Inactive pixels will be black. Note there are constraints on the legal values: (ntsc_interlaced_port_composite_active_pixels − ntsc_interlaced_port_composite_first_active_pixel) >= 698 (ntsc_interlaced_port_composite_active_pixels + ntsc_interlaced_port_composite_first_active_pixel) <= 716 This value is unsigned. Changes take effect after a Change−Config command.		
0x9414 VAR(0x05, 0x0014)	**7:0**	**0x03**	**ntsc_interlaced_port_composite_first_active_pixel (R/W)**
	Controls first active pixel output by the composite port during the active line time. Pixels prior to the first active pixel will be black. Pixels after first_active_pixel + active_pixels will be black. This value is unsigned. Changes take effect after a Change−Config command.		

PAL Variable Descriptions

Table 39. PAL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x9800 VAR(0x06, 0x0000)	**15:0**	**0x001C**	**pal_interlaced_output_format_yuv (R/W)**
	15:11	X	Reserved
	10:9	RO	Reserved
	8	0x0000	pal_interlaced_output_format_yuv_mono_enable Enable monochrome output: 0: Monochrome disabled. 1: Monochrome enabled. This value is unsigned. Changes take effect after a Change−Config command.
	7	RO	Reserved
	6:5	RO	Reserved
	4	RO	Reserved
	3	RO	Reserved
	2	RO	Reserved
	1:0	RO	Reserved
	Output format YUV control flags. This value is unsigned. Changes take effect after a Change−Config command.		
0x9803 VAR(0x06, 0x0003)	**7:0**	**0x10**	**pal_interlaced_output_y_offset (R/W)**
	Pedestal control. This value is unsigned. Changes take effect after a Change−Config command.		
0x9804 VAR(0x06, 0x0004)	**7:0**	**0x32**	**pal_aet_flicker_freq_hz (R/W)**
	The desired flicker avoidance frequency in Hertz (50Hz or 60Hz) for PAL operation. This value is unsigned. Changes take effect after a Change−Config command.		

Table 39. PAL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x9808 VAR(0x06, 0x0008)	**15:0**	**0x0082**	**pal_interlaced_port_parallel_control (R/W)**
	15:12	X	Reserved
	11:10	RO	Reserved
	9	RO	Reserved
	8	RO	Reserved
	7	RO	Reserved
	6	0x00	pal_interlaced_port_parallel_pixclk_invert Invert output pixel clock in PAL mode: 0: pixel clock not inverted. 1: pixel clock inverted. This value is unsigned. Changes take effect after a Change−Config command.
	5	0x00	pal_interlaced_port_parallel_fv_lv_enable Enable the FV and LV strobes in PAL mode: 0: FV/LV strobes disabled. 1: FV/LV strobes enabled. This value is unsigned. Changes take effect after a Change−Config command.
	4	0x00	pal_interlaced_port_parallel_pixclk_gate_on Control pixel clock gating in PAL mode: 0: pixel clock free−runs. 1: pixel clock gated (only runs when FV/LV asserted). This value is unsigned. Changes take effect after a Change−Config command.
	3	X	Reserved
	2:1	RO	Reserved
	0	0x00	pal_interlaced_port_parallel_enable Enable the parallel port for PAL mode: 0: Port disabled. 1: Port enabled. This value is unsigned. Changes take effect after a Change−Config command.
	Parallel port control (bitfield). This value is unsigned. Changes take effect after a Change−Config command.		

Table 39. PAL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0x980A VAR(0x06, 0x000A)	**15:0**	**0x0001**	**pal_interlaced_port_composite_control (R/W)**
	15:3	X	Reserved
	2	0x00	pal_interlaced_port_composite_enable_pedestal Enables the pedestal for PAL mode: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect after a Change−Config command.
	1	0x00	pal_interlaced_port_composite_enable_bw Enable monochrome (black and white) for PAL mode: 0: Color. 1: Monochrome. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	pal_interlaced_port_composite_enable Enable the composite port for PAL mode: 0: Port disabled. 1: Port enabled. This value is unsigned. Changes take effect after a Change−Config command.
	Composite port control (bitfield). This value is unsigned. Changes take effect after a Change−Config command.		
0x980C VAR(0x06, 0x000C)	**15:0**	**0xFF11**	**pal_interlaced_port_composite_burst_cb (R/W)**
	Controls the peak−to−peak amplitude of the PAL colorburst (in combination with pal_interlaced_port_composite_burst_cr). When the colorburst needs to be adjusted both (pal_interlaced_port_composite_burst_cb, pal_interlaced_port_composite_burst_cr) default values need to be multiplied by the same adjustment factor. This value is signed 2's complement. Changes take effect after a Change−Config command.		
0x980E VAR(0x06, 0x000E)	**15:0**	**0x00AA**	**pal_interlaced_port_composite_burst_cr (R/W)**
	Controls the peak−to−peak amplitude of the PAL colorburst (in combination with pal_interlaced_port_composite_burst_cb). When the colorburst needs to be adjusted both (pal_interlaced_port_composite_burst_cb, pal_interlaced_port_composite_burst_cr) default values need to be multiplied by the same adjustment factor. This value is signed 2's complement. Changes take effect after a Change−Config command.		
0x9810 VAR(0x06, 0x0010)	**15:0**	**0x0000**	**pal_interlaced_port_composite_sub_phase_offset (R/W)**
	This value adjusts color burst phase +/−90 (−256 = −90). Note: If more phase is required then negating pal_interlaced_port_composite_burst_cb/cr would increase the phase by 180 degrees, then the full range can be achieved. This value is signed 2's complement. Changes take effect after a Change−Config command.		
0x9812 VAR(0x06, 0x0012)	**15:0**	**0x02C0**	**pal_interlaced_port_composite_active_pixels (R/W)**
	Controls the number of active pixels output by the composite port during the active line time. Inactive pixels will be black. Note there are constraints on the legal values: (pal_interlaced_port_composite_active_pixels − pal_interlaced_port_composite_first_active_pixel) >= 698 (pal_interlaced_port_composite_active_pixels + pal_interlaced_port_composite_first_active_pixel) <= 716 This value is unsigned. Changes take effect after a Change−Config command.		
0x9814 VAR(0x06, 0x0014)	**7:0**	**0x05**	**pal_interlaced_port_composite_first_active_pixel (R/W)**
	Controls first active pixel output by the composite port during the active line time. Pixels prior to the first active pixel will be black. Pixels after first_active_pixel + active_pixels will be black. This value is unsigned. Changes take effect after a Change−Config command.		

AE_Rule Variable Descriptions

Table 40. AE_RULE VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xA404 VAR(0x09, 0x0004)	**15:0**	**0x0003**	**ae_rule_algo (R/W)**
	15:3	X	Reserved
	2:0	0x03	ae_rule_exec_rule_avgy_algo Auto exposure rule algorithm control. 0: Average Brightness 1: Weighted Brightness 2: Average Log Brightness 3: Weighted Log Brightness. Note: Modes 0 and 1 are only intended for usage in SDR mode (for backwards compatibility with previous automotive SOCs). This value is unsigned. Changes take effect during Vertical Blanking.
	AE Rule algorithm control. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA408 VAR(0x09, 0x0008)	**15:0**	**0x0000**	**ae_rule_avg_log_y_from_stats (RO)**
	Average of the log of each AE zone luminance statistics This value is unsigned fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xA40A VAR(0x09, 0x000A)	**7:0**	**0x19**	**ae_rule_ae_weight_table_0_0 (R/W)**
	Percentage weight for window row 0, column 0. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA40B VAR(0x09, 0x000B)	**7:0**	**0x19**	**ae_rule_ae_weight_table_0_1 (R/W)**
	Percentage weight for window row 0, column 1. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA40C VAR(0x09, 0x000C)	**7:0**	**0x19**	**ae_rule_ae_weight_table_0_2 (R/W)**
	Percentage weight for window row 0, column 2. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA40D VAR(0x09, 0x000D)	**7:0**	**0x19**	**ae_rule_ae_weight_table_0_3 (R/W)**
	Percentage weight for window row 0, column 3. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA40E VAR(0x09, 0x000E)	**7:0**	**0x19**	**ae_rule_ae_weight_table_0_4 (R/W)**
	Percentage weight for window row 0, column 4. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA40F VAR(0x09, 0x000F)	**7:0**	**0x19**	**ae_rule_ae_weight_table_1_0 (R/W)**
	Percentage weight for window row 1, column 0. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA410 VAR(0x09, 0x0010)	**7:0**	**0x4B**	**ae_rule_ae_weight_table_1_1 (R/W)**
	Percentage weight for window row 1, column 1. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA411 VAR(0x09, 0x0011)	**7:0**	**0x4B**	**ae_rule_ae_weight_table_1_2 (R/W)**
	Percentage weight for window row 1, column 2. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 40. AE_RULE VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xA412 VAR(0x09, 0x0012)	7:0	0x4B	ae_rule_ae_weight_table_1_3 (R/W)
	Percentage weight for window row 1, column 3. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA413 VAR(0x09, 0x0013)	7:0	0x19	ae_rule_ae_weight_table_1_4 (R/W)
	Percentage weight for window row 1, column 4. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA414 VAR(0x09, 0x0014)	7:0	0x19	ae_rule_ae_weight_table_2_0 (R/W)
	Percentage weight for window row 2, column 0. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA415 VAR(0x09, 0x0015)	7:0	0x4B	ae_rule_ae_weight_table_2_1 (R/W)
	Percentage weight for window row 2, column 1. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA416 VAR(0x09, 0x0016)	7:0	0x64	ae_rule_ae_weight_table_2_2 (R/W)
	Percentage weight for window row 2, column 2. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA417 VAR(0x09, 0x0017)	7:0	0x4B	ae_rule_ae_weight_table_2_3 (R/W)
	Percentage weight for window row 2, column 3. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA418 VAR(0x09, 0x0018)	7:0	0x19	ae_rule_ae_weight_table_2_4 (R/W)
	Percentage weight for window row 2, column 4. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA419 VAR(0x09, 0x0019)	7:0	0x19	ae_rule_ae_weight_table_3_0 (R/W)
	Percentage weight for window row 3, column 0. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA41A VAR(0x09, 0x001A)	7:0	0x4B	ae_rule_ae_weight_table_3_1 (R/W)
	Percentage weight for window row 3, column 1. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA41B VAR(0x09, 0x001B)	7:0	0x4B	ae_rule_ae_weight_table_3_2 (R/W)
	Percentage weight for window row 3, column 2. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA41C VAR(0x09, 0x001C)	7:0	0x4B	ae_rule_ae_weight_table_3_3 (R/W)
	Percentage weight for window row 3, column 3. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA41D VAR(0x09, 0x001D)	7:0	0x19	ae_rule_ae_weight_table_3_4 (R/W)
	Percentage weight for window row 3, column 4. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA41E VAR(0x09, 0x001E)	7:0	0x19	ae_rule_ae_weight_table_4_0 (R/W)
	Percentage weight for window row 4, column 0. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 40. AE_RULE VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xA41F VAR(0x09, 0x001F)	**7:0**	**0x19**	**ae_rule_ae_weight_table_4_1 (R/W)**
	Percentage weight for window row 4, column 1. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA420 VAR(0x09, 0x0020)	**7:0**	**0x19**	**ae_rule_ae_weight_table_4_2 (R/W)**
	Percentage weight for window row 4, column 2. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA421 VAR(0x09, 0x0021)	**7:0**	**0x19**	**ae_rule_ae_weight_table_4_3 (R/W)**
	Percentage weight for window row 4, column 3. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA422 VAR(0x09, 0x0022)	**7:0**	**0x19**	**ae_rule_ae_weight_table_4_4 (R/W)**
	Percentage weight for window row 4, column 4. This value is unsigned. Changes take effect during Vertical Blanking.		

AE_Track Variable Descriptions

Table 41. AE_TRACK VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xA800 VAR(0x0A, 0x0000)	**15:0**	**0x0000**	**ae_track_status (RO)**
	15:8	X	Reserved
	7	RO	Reserved
	6	RO	ae_track_ae_status_settled Status of AE track settling: 0x0: AE not settled 0x1: AE has settled This value is unsigned. Updates during Vertical Blanking.
	5	RO	Reserved
	4	RO	Reserved
	3	RO	ae_track_ae_status_ready When this bit is 1 it indicates that the AE Track algorithm has settled, or exposure and gain limits have been reached. This value is unsigned. Updates during Vertical Blanking.
	2	RO	Reserved
	1	RO	ae_track_ae_status_limithigh When this bit is 1 it indicates that the AE Track algorithm has reached the high limit (the maximum permitted coarse/fine integration times and virtual gain). This value is unsigned. Updates during Vertical Blanking.
	0	RO	ae_track_ae_status_limitlow When this bit is 1 it indicates that the AE Track algorithm has reached the low limit (the minimum permitted coarse/fine integration times and virtual gain). This value is unsigned. Updates during Vertical Blanking.
	AE Track status flags. This value is unsigned. Updates during Vertical Blanking.		

Table 41. AE_TRACK VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xA802 VAR(0x0A, 0x0002)	**15:0**	**0x001C**	**ae_track_mode (R/W)**
	15:7	X	Reserved
	6	0x00	Reserved
	5	X	Reserved
	4	0x01	ae_track_ae_mode_min_digital_gain Enable minimum digital gain calculation: 0: Disabled. 1: Enabled. Note this mode is disabled when in SDR.The minimum digital gain feature is used to exchange integration time for digital gain since the noise degradation from exchanging integration time for digital can be smaller compared to the noise improvement by deriving those pixels using the long exposure instead of the short exposure. In order to calculate the amount of exposure reduction in terms of integration time, the histogram valley point is computed. The valley is the lowest point between the 2 peaks of a bimodal histogram. The goal is to move that valley point to within the t1 saturation point. In order to achieve this, the digital gain must be greater than the ratio of the histogram valley point luminance over a programmable target value which should be less than or equal to the T1 saturation point. Note this mode is not supported in SDR exposure mode. This value is unsigned. Changes take effect during Vertical Blanking.
	3	0x01	Reserved
	2	0x01	ae_track_ae_mode_percentile Enable histogram percentile target mode: 0: Disabled. 1: Enabled. When enabled, AE ensures that highlight clipping is within a set tolerance. AE tries to place a histogram high end percentile point below a target value. The amount of highlight clipping permitted varies with the number of pixels in the histogram low end. The more pixels that are in the histogram low end, the more important the low end pixels are and thus more clipping is allowed. The maximum exposure adjustment by histogram percentile is controlled by ae_track_max_perc_exp_adjust. This value is unsigned. Changes take effect during Vertical Blanking.
	1	0x00	Reserved
	0	X	Reserved
	AE Track mode control. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 41. AE_TRACK VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xA804 VAR(0x0A, 0x0004)	**15:0**	**0x003F**	**ae_track_algo (R/W)**
	15:6	X	Reserved
	5	0x01	Reserved
	4	0x01	Reserved
	3	0x01	ae_track_exec_calc_target_luma Execute target luma calculation routine 0: Disabled. 1: Enabled. When disabled, the ae_track_avg_log_y_target variable is read−write, allowing the host to set the target luma (in log2). This value is unsigned. Changes take effect during Vertical Blanking.
	2	0x01	Reserved
	1	0x01	Reserved
	0	0x01	Reserved
	AE Track algorithm control. This value is unsigned. Changes take effect during Vertical Blanking.		
0xA806 VAR(0x0A, 0x0006)	**15:0**	**0x0000**	**ae_track_avg_log_y_target (RO)**
	Current luma target in log2 space. Read−write if target luma calculation algorithm is disabled with ae_track_exec_calc_target_luma = 0. This value is unsigned fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xA812 VAR(0x0A, 0x0012)	**15:0**	**0x0080**	**ae_track_track_exp_speed (R/W)**
	This controls the speed in which auto−exposure will settle (0=slow reaction to changes, 256=fast reaction to changes). This value is unsigned. Changes take effect during Vertical Blanking.		
0xA814 VAR(0x0A, 0x0014)	**7:0**	**0x04**	**ae_track_adapt_thresh (R/W)**
	AE tracking threshold. This is equivalent to a gate around the target within which AE can settle. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xA815 VAR(0x0A, 0x0015)	**7:0**	**0x03**	**ae_track_damp_max (R/W)**
	Maximum AE damping. This value is the damping speed when the exposure is near the target (0 is the slowest adaptation). This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xA816 VAR(0x0A, 0x0016)	**7:0**	**0x03**	**ae_track_damp_slope (R/W)**
	Adaptive AE damping slope. This increases the distance between damp_max and damp_min. The smaller the value the bigger the distance. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xA817 VAR(0x0A, 0x0017)	**7:0**	**0x1C**	**ae_track_damp_min (R/W)**
	Minimum AE damping. This value is the damping speed when the exposure is far from the target (0 is the slowest adaptation). This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xA81E VAR(0x0A, 0x001E)	**7:0**	**0x86**	**ae_track_min_gain_gate (R/W)**
	Gate around the minimum digital gain. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		

Table 41. AE_TRACK VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xA81F VAR(0x0A, 0x001F)	**7:0**	**0x08**	**ae_track_track_min_gain_speed (R/W)**
	This controls the speed for the minimum gain algorithm (0=slow, 32=fast). This value is unsigned. Changes take effect during Vertical Blanking.		
0xA82C VAR(0x0A, 0x002C)	**15:0**	**0x07C0**	**ae_track_log_y_target_sdr_0 (R/W)**
	Target table for single exposure SDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA82E VAR(0x0A, 0x002E)	**15:0**	**0x081F**	**ae_track_log_y_target_sdr_1 (R/W)**
	Target table for single exposure SDR. Target table for single exposure SDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA830 VAR(0x0A, 0x0030)	**15:0**	**0x0880**	**ae_track_log_y_target_sdr_2 (R/W)**
	Target table for single exposure SDR. Target table for single exposure SDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA832 VAR(0x0A, 0x0032)	**15:0**	**0x08D1**	**ae_track_log_y_target_sdr_3 (R/W)**
	Target table for single exposure SDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA834 VAR(0x0A, 0x0034)	**15:0**	**0x0921**	**ae_track_log_y_target_sdr_4 (R/W)**
	Target table for single exposure SDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA836 VAR(0x0A, 0x0036)	**15:0**	**0x09A5**	**ae_track_log_y_target_sdr_5 (R/W)**
	Target table for single exposure SDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA838 VAR(0x0A, 0x0038)	**15:0**	**0x09D0**	**ae_track_log_y_target_sdr_6 (R/W)**
	Target table for single exposure SDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA83A VAR(0x0A, 0x003A)	**15:0**	**0x09F7**	**ae_track_log_y_target_sdr_7 (R/W)**
	Target table for single exposure SDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA83C VAR(0x0A, 0x003C)	**15:0**	**0x07C0**	**ae_track_log_y_target_hdr_0 (R/W)**
	Target table for single exposure HDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA83E VAR(0x0A, 0x003E)	**15:0**	**0x081F**	**ae_track_log_y_target_hdr_1 (R/W)**
	Target table for multiple exposure HDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		

Table 41. AE_TRACK VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xA840 VAR(0x0A, 0x0040)	15:0	0x0880	ae_track_log_y_target_hdr_2 (R/W)
	Target table for multiple exposure HDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA842 VAR(0x0A, 0x0042)	15:0	0x08D1	ae_track_log_y_target_hdr_3 (R/W)
	Target table for multiple exposure HDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA844 VAR(0x0A, 0x0044)	15:0	0x0921	ae_track_log_y_target_hdr_4 (R/W)
	Target table for multiple exposure HDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA846 VAR(0x0A, 0x0046)	15:0	0x09A5	ae_track_log_y_target_hdr_5 (R/W)
	Target table for multiple exposure HDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA848 VAR(0x0A, 0x0048)	15:0	0x09D0	ae_track_log_y_target_hdr_6 (R/W)
	Target table for multiple exposure HDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xA84A VAR(0x0A, 0x004A)	15:0	0x09F7	ae_track_log_y_target_hdr_7 (R/W)
	Target table for multiple exposure HDR. These variables can be tuned to provide, for example, high noise immunity or high flicker avoidance. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		

AWB Variable Descriptions

Table 42. AWB VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xAC00 VAR(0x0B, 0x0000)	**15:0**	**0x0000**	**awb_status (RO)**
	15:5	X	Reserved
	4	RO	awb_limits_reached 0x0: AWB has not reached the gain limits. 0x1: AWB has reached the gain limits. This value is unsigned. Updates during Vertical Blanking.
	3	RO	awb_no_stats 0x0: AWB has white balance statistics. 0x1: AWB has no white balance statistics to process. This value is unsigned. Updates during Vertical Blanking.
	2	X	Reserved
	1	RO	awb_color_temperature_limits 0x0: AWB is within valid color temperature limits. 0x1: AWB has reached the color temperature limits. This value is unsigned. Updates during Vertical Blanking.
	0	RO	awb_steady 0x0: AWB is busy. 0x1: AWB has reached a steady state. This value is unsigned. Updates during Vertical Blanking.
	AWB status flags. This value is unsigned. Updates during Vertical Blanking.		
0xAC02 VAR(0x0B, 0x0002)	**15:0**	**0x01C8**	**awb_mode (R/W)**
	15:9	X	Reserved
	8	0x0001	awb_3rd_ccm_enable Enables the ‘middle’ (3rd) CCM: 0: AWB interpolates between the ‘left’ and ‘right’ CCMs. 1: AWB interpolates between the ‘left’ and ‘middle’ CCMs, and the ‘middle’ and ‘right’ CCMs, dependent upon the calculated color temperature. This value is unsigned. Changes take effect during Vertical Blanking.
	7	0x01	Reserved
	6	0x01	Reserved
	5:4	X	Reserved
	3	0x01	Reserved
	2:0	X	Reserved
	AWB mode control. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC06 VAR(0x0B, 0x0006)	**7:0**	**0x63**	**awb_r_ratio_lower (R/W)**
	Lower value for the awb_r_ratio_post_awb threshold. This threshold is used to stop AWB calculating new ratios when the difference is small. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 42. AWB VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xAC07 VAR(0x0B, 0x0007)	**7:0**	**0x65**	**awb_r_ratio_upper (R/W)**
	Upper value for the awb_r_ratio_post_awb threshold. This threshold is used to stop AWB calculating new ratios when the difference is small. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC08 VAR(0x0B, 0x0008)	**7:0**	**0x63**	**awb_b_ratio_lower (R/W)**
	Lower value for the awb_b_ratio_post_awb threshold. This threshold is used to stop AWB calculating new ratios when the difference is small. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC09 VAR(0x0B, 0x0009)	**7:0**	**0x65**	**awb_b_ratio_upper (R/W)**
	Upper value for the awb_b_ratio_post_awb threshold. This threshold is used to stop AWB calculating new ratios when the difference is small. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC0A VAR(0x0B, 0x000A)	**7:0**	**0x19**	**awb_r_scene_ratio_lower (R/W)**
	Lower limit value for awb_r_ratio_pre_awb. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC0B VAR(0x0B, 0x000B)	**7:0**	**0xFF**	**awb_r_scene_ratio_upper (R/W)**
	Upper limit value for awb_r_ratio_pre_awb. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC0C VAR(0x0B, 0x000C)	**7:0**	**0x19**	**awb_b_scene_ratio_lower (R/W)**
	Lower limit value for awb_b_ratio_pre_awb. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC0D VAR(0x0B, 0x000D)	**7:0**	**0xFF**	**awb_b_scene_ratio_upper (R/W)**
	Upper limit value for awb_b_ratio_pre_awb. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC0E VAR(0x0B, 0x000E)	**7:0**	**0x64**	**awb_r_ratio_pre_awb (RO)**
	R/G ratio from the statistics (before AWB gains applied). This value is unsigned. Updates during Vertical Blanking.		
0xAC0F VAR(0x0B, 0x000F)	**7:0**	**0x64**	**awb_b_ratio_pre_awb (RO)**
	B/G ratio from the statistics (before AWB gains applied). This value is unsigned. Updates during Vertical Blanking.		
0xAC10 VAR(0x0B, 0x0010)	**7:0**	**0x64**	**awb_r_ratio_post_awb (RO)**
	Scene R/G color ratio calculated from raw AWB statistics, unity is 100 (read only). This value is unsigned. Updates during Vertical Blanking.		
0xAC11 VAR(0x0B, 0x0011)	**7:0**	**0x64**	**awb_b_ratio_post_awb (RO)**
	Scene B/G color ratio calculated from raw AWB statistics, unity is 100 (read only). This value is unsigned. Updates during Vertical Blanking.		
0xAC12 VAR(0x0B, 0x0012)	**15:0**	**0x0080**	**awb_r_gain (RO)**
	Red channel gain in effect for next frame. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		

Table 42. AWB VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xAC14 VAR(0x0B, 0x0014)	15:0	0x0080	awb_b_gain (RO)
	Blue channel gain in effect for next frame. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		
0xAC16 VAR(0x0B, 0x0016)	7:0	0x0A	awb_pre_awb_ratios_tracking_speed (R/W)
	Controls the damping speed for pre−AWB ratios tracking: 0: Maximum damping. 32: No damping. This value is unsigned. Changes take effect during Vertical Blanking.		
0xAC24 VAR(0x0B, 0x0024)	15:0	0x0900	awb_ir_control_brightness_th (R/W)
	Threshold for brightness metric log to force Daylight CCM (unity = 256). This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xAC28 VAR(0x0B, 0x0028)	15:0	0x00CD	awb_ir_control_threshold_1 (R/W)
	Threshold parameter for the A−F boundary line. Unity is 128 (7 bit precision). This value is signed 2's complement fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xAC2A VAR(0x0B, 0x002A)	15:0	0x0004	awb_ir_control_threshold_1_gate (R/W)
	Hysteresis gate for awb_ir_control_threshold_1. Unity is 128 (7 bit precision). This value is signed 2's complement fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xAC2C VAR(0x0B, 0x002C)	15:0	0xFF40	awb_ir_control_slope_k1 (R/W)
	Slope for the A−F boundary line. Unity is 128 (7 bit precision). This value is signed 2's complement fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xAC2E VAR(0x0B, 0x002E)	15:0	0x000D	awb_ir_control_threshold_2 (R/W)
	Threshold parameter for the Day−A boundary line. Unity is 128 (7 bit precision). This value is signed 2's complement fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xAC30 VAR(0x0B, 0x0030)	15:0	0x0004	awb_ir_control_threshold_2_gate (R/W)
	Hysteresis gate for awb_ir_control_threshold_2. Unity is 128 (7 bit precision). This value is signed 2's complement fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xAC32 VAR(0x0B, 0x0032)	15:0	0x00A4	awb_ir_control_slope_k2 (R/W)
	Slope for the Day−A boundary line. Unity is 128 (7 bit precision). This value is signed 2's complement fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		

Blacklevel Variable Descriptions

Table 43. BLACKLEVEL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB004 VAR(0x0C, 0x0004)	**15:0**	**0x0004**	**blacklevel_algo (R/W)**
	15:3	X	Reserved
	2	0x01	blacklevel_exec_calc_blacklevel Controls the automatic blacklevel calculation: 0: Disabled: use cam_cpipe_control_second_black_level to enable manual control. 1: Automatic: firmware calculates the second black level subtraction and stretch. This value is unsigned. Changes take effect during Vertical Blanking.
	1:0	X	Reserved
	Blacklevel algorithm control. This value is unsigned. Changes take effect during Vertical Blanking.		
0xB00C VAR(0x0C, 0x000C)	**7:0**	**0x80**	**blacklevel_max_black_level (R/W)**
	Controls the maximum black level that the firmware can subtract. This value is unsigned. Changes take effect during Vertical Blanking.		
0xB00D VAR(0x0C, 0x000D)	**7:0**	**0x06**	**blacklevel_black_level_damping (R/W)**
	Controls the damping speed for the current blacklevel: 0: Maximum damping. 32: No damping. This value is unsigned. Changes take effect during Vertical Blanking.		

CCM Variable Descriptions

Table 44. CCM VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB402 VAR(0x0D, 0x0002)	**15:0**	**0x0000**	**ccm_mode (R/W)**
	15:5	X	Reserved
	4	0x00	ccm_disable_norm CCM normalization control: 0: Enabled – CCMs are normalized to unity gain. 1: Disabled – CCMs are unmodified. Note: This control does not disable the blacklevel histogram equalization. This value is unsigned. Changes take effect during Vertical Blanking.
	3:0	X	Reserved
	CCM mode control. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 44. CCM VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB404 VAR(0x0D, 0x0004)	**15:0**	**0x0030**	**ccm_algo (R/W)**
	15:6	X	Reserved
	5	0x01	Reserved
	4	0x01	Reserved
	3:0	X	Reserved
	Controls the CCM algorithms: 0x0: Disabled – manual CCM control. 0x30: Automatic CCM control This value is unsigned. Changes take effect during Vertical Blanking.		
0xB406 VAR(0x0D, 0x0006)	**15:0**	**0x0000**	**ccm_0 (RO)**
	Color Correction Matrix value for column 0 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB408 VAR(0x0D, 0x0008)	**15:0**	**0x0000**	**ccm_1 (RO)**
	Color Correction Matrix value for column 1 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB40A VAR(0x0D, 0x000A)	**15:0**	**0x0000**	**ccm_2 (RO)**
	Color Correction Matrix value for column 2 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB40C VAR(0x0D, 0x000C)	**15:0**	**0x0000**	**ccm_3 (RO)**
	Color Correction Matrix value for column 0 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB40E VAR(0x0D, 0x000E)	**15:0**	**0x0000**	**ccm_4 (RO)**
	Color Correction Matrix value for column 1 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB410 VAR(0x0D, 0x0010)	**15:0**	**0x0000**	**ccm_5 (RO)**
	Color Correction Matrix value for column 2 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB412 VAR(0x0D, 0x0012)	**15:0**	**0x0000**	**ccm_6 (RO)**
	Color Correction Matrix value for column 0 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB414 VAR(0x0D, 0x0014)	**15:0**	**0x0000**	**ccm_7 (RO)**
	Color Correction Matrix value for column 1 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB416 VAR(0x0D, 0x0016)	**15:0**	**0x0000**	**ccm_8 (RO)**
	Color Correction Matrix value for column 2 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		

Stat Variable Descriptions

Table 45. STAT VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB804 VAR(0x0E, 0x0004)	**31:0**	**0x00000000**	**stat_average_luma (RO)**
	Weighted average luma of included pixels (zones with excluded pixels have lower weight). Unity=1. This value is unsigned. Updates during Vertical Blanking.		
0xB808 VAR(0x0E, 0x0008)	**15:0**	**0x0000**	**stat_log_average_luma (RO)**
	Log2(average_luma). Unity=256. This value is unsigned fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xB80A VAR(0x0E, 0x000A)	**15:0**	**0x0000**	**stat_average_logy (RO)**
	Weighted average log2(Y) of included pixels (zones with excluded pixels have lower weight). Unity=2048. This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB80C VAR(0x0E, 0x000C)	**31:0**	**0x00000000**	**stat_altm_l_min (RO)**
	Minimum L value from statistics engine, default 2^16*0.01. L is the illuminant component which is estimated from the Shape Adaptive Filter operating on Luma Y. This value is unsigned. Updates during Vertical Blanking.		
0xB810 VAR(0x0E, 0x0010)	**31:0**	**0x00000000**	**stat_altm_l_max (RO)**
	Maximum L value from statistics engine, 2^16*0.99. L is the illuminant component which is estimated from the Shape Adaptive Filter operating on Luma Y. This value is unsigned. Updates during Vertical Blanking.		
0xB814 VAR(0x0E, 0x0014)	**31:0**	**0x00000000**	**stat_awb_pixels_in_stat (RO)**
	Total pixels used to generate AWB statistics. This value is unsigned. Updates during Vertical Blanking.		
0xB818 VAR(0x0E, 0x0018)	**15:0**	**0x0000**	**stat_awb_norm_sum_weighted_red (RO)**
	Normalized sum of weighted red. This value is unsigned. Updates during Vertical Blanking.		
0xB81A VAR(0x0E, 0x001A)	**15:0**	**0x0000**	**stat_awb_norm_sum_weighted_green (RO)**
	Normalized sum of weighted green. This value is unsigned. Updates during Vertical Blanking.		
0xB81C VAR(0x0E, 0x001C)	**15:0**	**0x0000**	**stat_awb_norm_sum_weighted_blue (RO)**
	Normalized sum of weighted blue. This value is unsigned. Updates during Vertical Blanking.		
0xB820 VAR(0x0E, 0x0020)	**31:0**	**0x00000000**	**stat_clip_total_pixels_win (RO)**
	Total number of pixels in CLIP window. This value is unsigned. Updates during Vertical Blanking.		
0xB824 VAR(0x0E, 0x0024)	**15:0**	**0x0000**	**stat_clip_num_lowlights (RO)**
	Percentage of pixels in the 'dark' region (1024 = 100%). This value is unsigned. Updates during Vertical Blanking.		
0xB850 VAR(0x0E, 0x0050)	**15:0**	**0x0000**	**stat_ae_zone_size_cells (RO)**
	Number of cells in each AE zone. This value is unsigned. Updates after a Refresh command.		

Table 45. STAT VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB852 VAR(0x0E, 0x0052)	**15:0**	**0x0000**	**stat_ae_histogram_size (RO)**
	Total number of cells in AE luma histogram. This value is unsigned. Updates during Vertical Blanking.		
0xB854 VAR(0x0E, 0x0054)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_0_0 (RO)**
	Average luminance for AE window zone [0, 0] This value is unsigned. Updates during Vertical Blanking.		
0xB858 VAR(0x0E, 0x0058)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_0_1 (RO)**
	Average luminance for AE window zone [0, 1] This value is unsigned. Updates during Vertical Blanking.		
0xB85C VAR(0x0E, 0x005C)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_0_2 (RO)**
	Average luminance for AE window zone [0, 2] This value is unsigned. Updates during Vertical Blanking.		
0xB860 VAR(0x0E, 0x0060)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_0_3 (RO)**
	Average luminance for AE window zone [0, 3] This value is unsigned. Updates during Vertical Blanking.		
0xB864 VAR(0x0E, 0x0064)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_0_4 (RO)**
	Average luminance for AE window zone [0, 4] This value is unsigned. Updates during Vertical Blanking.		
0xB868 VAR(0x0E, 0x0068)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_1_0 (RO)**
	Average luminance for AE window zone [1, 0] This value is unsigned. Updates during Vertical Blanking.		
0xB86C VAR(0x0E, 0x006C)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_1_1 (RO)**
	Average luminance for AE window zone [1, 1] This value is unsigned. Updates during Vertical Blanking.		
0xB870 VAR(0x0E, 0x0070)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_1_2 (RO)**
	Average luminance for AE window zone [1, 2] This value is unsigned. Updates during Vertical Blanking.		
0xB874 VAR(0x0E, 0x0074)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_1_3 (RO)**
	Average luminance for AE window zone [1, 3] This value is unsigned. Updates during Vertical Blanking.		
0xB878 VAR(0x0E, 0x0078)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_1_4 (RO)**
	Average luminance for AE window zone [1, 4] This value is unsigned. Updates during Vertical Blanking.		
0xB87C VAR(0x0E, 0x007C)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_2_0 (RO)**
	Average luminance for AE window zone [2, 0] This value is unsigned. Updates during Vertical Blanking.		
0xB880 VAR(0x0E, 0x0080)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_2_1 (RO)**
	Average luminance for AE window zone [2, 1] This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB884 VAR(0x0E, 0x0084)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_2_2 (RO)**
	Average luminance for AE window zone [2, 2] This value is unsigned. Updates during Vertical Blanking.		
0xB888 VAR(0x0E, 0x0088)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_2_3 (RO)**
	Average luminance for AE window zone [2, 3] This value is unsigned. Updates during Vertical Blanking.		
0xB88C VAR(0x0E, 0x008C)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_2_4 (RO)**
	Average luminance for AE window zone [2, 4] This value is unsigned. Updates during Vertical Blanking.		
0xB890 VAR(0x0E, 0x0090)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_3_0 (RO)**
	Average luminance for AE window zone [3, 0] This value is unsigned. Updates during Vertical Blanking.		
0xB894 VAR(0x0E, 0x0094)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_3_1 (RO)**
	Average luminance for AE window zone [3, 1] This value is unsigned. Updates during Vertical Blanking.		
0xB898 VAR(0x0E, 0x0098)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_3_2 (RO)**
	Average luminance for AE window zone [3, 2] This value is unsigned. Updates during Vertical Blanking.		
0xB89C VAR(0x0E, 0x009C)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_3_3 (RO)**
	Average luminance for AE window zone [3, 3] This value is unsigned. Updates during Vertical Blanking.		
0xB8A0 VAR(0x0E, 0x00A0)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_3_4 (RO)**
	Average luminance for AE window zone [3, 4] This value is unsigned. Updates during Vertical Blanking.		
0xB8A4 VAR(0x0E, 0x00A4)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_4_0 (RO)**
	Average luminance for AE window zone [4, 0] This value is unsigned. Updates during Vertical Blanking.		
0xB8A8 VAR(0x0E, 0x00A8)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_4_1 (RO)**
	Average luminance for AE window zone [4, 1] This value is unsigned. Updates during Vertical Blanking.		
0xB8AC VAR(0x0E, 0x00AC)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_4_2 (RO)**
	Average luminance for AE window zone [4, 2] This value is unsigned. Updates during Vertical Blanking.		
0xB8B0 VAR(0x0E, 0x00B0)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_4_3 (RO)**
	Average luminance for AE window zone [4, 3] This value is unsigned. Updates during Vertical Blanking.		
0xB8B4 VAR(0x0E, 0x00B4)	**31:0**	**0x00000000**	**stat_ae_zone_avgluma_4_4 (RO)**
	Average luminance for AE window zone [4, 4] This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB8B8 VAR(0x0E, 0x00B8)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_0_0 (RO)**
	Average of the log2 of luminance for AE window zone [0, 0] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8BA VAR(0x0E, 0x00BA)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_0_1 (RO)**
	Average of the log2 of luminance for AE window zone [0, 1] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8BC VAR(0x0E, 0x00BC)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_0_2 (RO)**
	Average of the log2 of luminance for AE window zone [0, 2] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8BE VAR(0x0E, 0x00BE)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_0_3 (RO)**
	Average of the log2 of luminance for AE window zone [0, 3] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8C0 VAR(0x0E, 0x00C0)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_0_4 (RO)**
	Average of the log2 of luminance for AE window zone [0, 4] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8C2 VAR(0x0E, 0x00C2)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_1_0 (RO)**
	Average of the log2 of luminance for AE window zone [1, 0] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8C4 VAR(0x0E, 0x00C4)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_1_1 (RO)**
	Average of the log2 of luminance for AE window zone [1, 1] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8C6 VAR(0x0E, 0x00C6)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_1_2 (RO)**
	Average of the log2 of luminance for AE window zone [1, 2] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8C8 VAR(0x0E, 0x00C8)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_1_3 (RO)**
	Average of the log2 of luminance for AE window zone [1, 3] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8CA VAR(0x0E, 0x00CA)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_1_4 (RO)**
	Average of the log2 of luminance for AE window zone [1, 4] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8CC VAR(0x0E, 0x00CC)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_2_0 (RO)**
	Average of the log2 of luminance for AE window zone [2, 0] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8CE VAR(0x0E, 0x00CE)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_2_1 (RO)**
	Average of the log2 of luminance for AE window zone [2, 1] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8D0 VAR(0x0E, 0x00D0)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_2_2 (RO)**
	Average of the log2 of luminance for AE window zone [2, 2] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB8D2 VAR(0x0E, 0x00D2)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_2_3 (RO)**
	Average of the log2 of luminance for AE window zone [2, 3] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8D4 VAR(0x0E, 0x00D4)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_2_4 (RO)**
	Average of the log2 of luminance for AE window zone [2, 4] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8D6 VAR(0x0E, 0x00D6)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_3_0 (RO)**
	Average of the log2 of luminance for AE window zone [3, 0] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8D8 VAR(0x0E, 0x00D8)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_3_1 (RO)**
	Average of the log2 of luminance for AE window zone [3, 1] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8DA VAR(0x0E, 0x00DA)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_3_2 (RO)**
	Average of the log2 of luminance for AE window zone [3, 2] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8DC VAR(0x0E, 0x00DC)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_3_3 (RO)**
	Average of the log2 of luminance for AE window zone [3, 3] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8DE VAR(0x0E, 0x00DE)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_3_4 (RO)**
	Average of the log2 of luminance for AE window zone [3, 4] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8E0 VAR(0x0E, 0x00E0)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_4_0 (RO)**
	Average of the log2 of luminance for AE window zone [4, 0] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8E2 VAR(0x0E, 0x00E2)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_4_1 (RO)**
	Average of the log2 of luminance for AE window zone [4, 1] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8E4 VAR(0x0E, 0x00E4)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_4_2 (RO)**
	Average of the log2 of luminance for AE window zone [4, 2] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8E6 VAR(0x0E, 0x00E6)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_4_3 (RO)**
	Average of the log2 of luminance for AE window zone [4, 3] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB8E8 VAR(0x0E, 0x00E8)	**15:0**	**0x0000**	**stat_ae_zone_avglogy_4_4 (RO)**
	Average of the log2 of luminance for AE window zone [4, 4] This value is unsigned fixed−point with 11 fractional bits. Updates during Vertical Blanking.		
0xB91C VAR(0x0E, 0x011C)	**15:0**	**0x0000**	**stat_ae_histogram_0 (RO)**
	luminance statistics histogram bin 0 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB91E VAR(0x0E, 0x011E)	15:0	0x0000	stat_ae_histogram_1 (RO)
	luminance statistics histogram bin 1 This value is unsigned. Updates during Vertical Blanking.		
0xB920 VAR(0x0E, 0x0120)	15:0	0x0000	stat_ae_histogram_2 (RO)
	luminance statistics histogram bin 2 This value is unsigned. Updates during Vertical Blanking.		
0xB922 VAR(0x0E, 0x0122)	15:0	0x0000	stat_ae_histogram_3 (RO)
	luminance statistics histogram bin 3 This value is unsigned. Updates during Vertical Blanking.		
0xB924 VAR(0x0E, 0x0124)	15:0	0x0000	stat_ae_histogram_4 (RO)
	luminance statistics histogram bin 4 This value is unsigned. Updates during Vertical Blanking.		
0xB926 VAR(0x0E, 0x0126)	15:0	0x0000	stat_ae_histogram_5 (RO)
	luminance statistics histogram bin 5 This value is unsigned. Updates during Vertical Blanking.		
0xB928 VAR(0x0E, 0x0128)	15:0	0x0000	stat_ae_histogram_6 (RO)
	luminance statistics histogram bin 6 This value is unsigned. Updates during Vertical Blanking.		
0xB92A VAR(0x0E, 0x012A)	15:0	0x0000	stat_ae_histogram_7 (RO)
	luminance statistics histogram bin 7 This value is unsigned. Updates during Vertical Blanking.		
0xB92C VAR(0x0E, 0x012C)	15:0	0x0000	stat_ae_histogram_8 (RO)
	luminance statistics histogram bin 8 This value is unsigned. Updates during Vertical Blanking.		
0xB92E VAR(0x0E, 0x012E)	15:0	0x0000	stat_ae_histogram_9 (RO)
	luminance statistics histogram bin 9 This value is unsigned. Updates during Vertical Blanking.		
0xB930 VAR(0x0E, 0x0130)	15:0	0x0000	stat_ae_histogram_10 (RO)
	luminance statistics histogram bin 10 This value is unsigned. Updates during Vertical Blanking.		
0xB932 VAR(0x0E, 0x0132)	15:0	0x0000	stat_ae_histogram_11 (RO)
	luminance statistics histogram bin 11 This value is unsigned. Updates during Vertical Blanking.		
0xB934 VAR(0x0E, 0x0134)	15:0	0x0000	stat_ae_histogram_12 (RO)
	luminance statistics histogram bin 12 This value is unsigned. Updates during Vertical Blanking.		
0xB936 VAR(0x0E, 0x0136)	15:0	0x0000	stat_ae_histogram_13 (RO)
	luminance statistics histogram bin 13 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB938 VAR(0x0E, 0x0138)	**15:0**	**0x0000**	**stat_ae_histogram_14 (RO)**
	luminance statistics histogram bin 14 This value is unsigned. Updates during Vertical Blanking.		
0xB93A VAR(0x0E, 0x013A)	**15:0**	**0x0000**	**stat_ae_histogram_15 (RO)**
	luminance statistics histogram bin 15 This value is unsigned. Updates during Vertical Blanking.		
0xB93C VAR(0x0E, 0x013C)	**15:0**	**0x0000**	**stat_ae_histogram_16 (RO)**
	luminance statistics histogram bin 16 This value is unsigned. Updates during Vertical Blanking.		
0xB93E VAR(0x0E, 0x013E)	**15:0**	**0x0000**	**stat_ae_histogram_17 (RO)**
	luminance statistics histogram bin 17 This value is unsigned. Updates during Vertical Blanking.		
0xB940 VAR(0x0E, 0x0140)	**15:0**	**0x0000**	**stat_ae_histogram_18 (RO)**
	luminance statistics histogram bin 18 This value is unsigned. Updates during Vertical Blanking.		
0xB942 VAR(0x0E, 0x0142)	**15:0**	**0x0000**	**stat_ae_histogram_19 (RO)**
	luminance statistics histogram bin 19 This value is unsigned. Updates during Vertical Blanking.		
0xB944 VAR(0x0E, 0x0144)	**15:0**	**0x0000**	**stat_ae_histogram_20 (RO)**
	luminance statistics histogram bin 20 This value is unsigned. Updates during Vertical Blanking.		
0xB946 VAR(0x0E, 0x0146)	**15:0**	**0x0000**	**stat_ae_histogram_21 (RO)**
	luminance statistics histogram bin 21 This value is unsigned. Updates during Vertical Blanking.		
0xB948 VAR(0x0E, 0x0148)	**15:0**	**0x0000**	**stat_ae_histogram_22 (RO)**
	luminance statistics histogram bin 22 This value is unsigned. Updates during Vertical Blanking.		
0xB94A VAR(0x0E, 0x014A)	**15:0**	**0x0000**	**stat_ae_histogram_23 (RO)**
	luminance statistics histogram bin 23 This value is unsigned. Updates during Vertical Blanking.		
0xB94C VAR(0x0E, 0x014C)	**15:0**	**0x0000**	**stat_ae_histogram_24 (RO)**
	luminance statistics histogram bin 24 This value is unsigned. Updates during Vertical Blanking.		
0xB94E VAR(0x0E, 0x014E)	**15:0**	**0x0000**	**stat_ae_histogram_25 (RO)**
	luminance statistics histogram bin 25 This value is unsigned. Updates during Vertical Blanking.		
0xB950 VAR(0x0E, 0x0150)	**15:0**	**0x0000**	**stat_ae_histogram_26 (RO)**
	luminance statistics histogram bin 26 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB952 VAR(0x0E, 0x0152)	15:0	0x0000	stat_ae_histogram_27 (RO)
	luminance statistics histogram bin 27 This value is unsigned. Updates during Vertical Blanking.		
0xB954 VAR(0x0E, 0x0154)	15:0	0x0000	stat_ae_histogram_28 (RO)
	luminance statistics histogram bin 28 This value is unsigned. Updates during Vertical Blanking.		
0xB956 VAR(0x0E, 0x0156)	15:0	0x0000	stat_ae_histogram_29 (RO)
	luminance statistics histogram bin 29 This value is unsigned. Updates during Vertical Blanking.		
0xB958 VAR(0x0E, 0x0158)	15:0	0x0000	stat_ae_histogram_30 (RO)
	luminance statistics histogram bin 30 This value is unsigned. Updates during Vertical Blanking.		
0xB95A VAR(0x0E, 0x015A)	15:0	0x0000	stat_ae_histogram_31 (RO)
	luminance statistics histogram bin 31 This value is unsigned. Updates during Vertical Blanking.		
0xB95C VAR(0x0E, 0x015C)	15:0	0x0000	stat_ae_histogram_32 (RO)
	luminance statistics histogram bin 32 This value is unsigned. Updates during Vertical Blanking.		
0xB95E VAR(0x0E, 0x015E)	15:0	0x0000	stat_ae_histogram_33 (RO)
	luminance statistics histogram bin 33 This value is unsigned. Updates during Vertical Blanking.		
0xB960 VAR(0x0E, 0x0160)	15:0	0x0000	stat_ae_histogram_34 (RO)
	luminance statistics histogram bin 34 This value is unsigned. Updates during Vertical Blanking.		
0xB962 VAR(0x0E, 0x0162)	15:0	0x0000	stat_ae_histogram_35 (RO)
	luminance statistics histogram bin 35 This value is unsigned. Updates during Vertical Blanking.		
0xB964 VAR(0x0E, 0x0164)	15:0	0x0000	stat_ae_histogram_36 (RO)
	luminance statistics histogram bin 36 This value is unsigned. Updates during Vertical Blanking.		
0xB966 VAR(0x0E,0x0166)	15:0	0x0000	stat_ae_histogram_37 (RO)
	luminance statistics histogram bin 37 This value is unsigned. Updates during Vertical Blanking.		
0xB968 VAR(0x0E, 0x0168)	15:0	0x0000	stat_ae_histogram_38 (RO)
	luminance statistics histogram bin 38 This value is unsigned. Updates during Vertical Blanking.		
0xB96A VAR(0x0E, 0x016A)	15:0	0x0000	stat_ae_histogram_39 (RO)
	luminance statistics histogram bin 39 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB96C VAR(0x0E, 0x016C)	**15:0**	**0x0000**	**stat_ae_histogram_40 (RO)**
	luminance statistics histogram bin 40 This value is unsigned. Updates during Vertical Blanking.		
0xB96E VAR(0x0E, 0x016E)	**15:0**	**0x0000**	**stat_ae_histogram_41 (RO)**
	luminance statistics histogram bin 41 This value is unsigned. Updates during Vertical Blanking.		
0xB970 VAR(0x0E, 0x0170)	**15:0**	**0x0000**	**stat_ae_histogram_42 (RO)**
	luminance statistics histogram bin 42 This value is unsigned. Updates during Vertical Blanking.		
0xB972 VAR(0x0E, 0x0172)	**15:0**	**0x0000**	**stat_ae_histogram_43 (RO)**
	luminance statistics histogram bin 43 This value is unsigned. Updates during Vertical Blanking.		
0xB974 VAR(0x0E, 0x0174)	**15:0**	**0x0000**	**stat_ae_histogram_44 (RO)**
	luminance statistics histogram bin 44 This value is unsigned. Updates during Vertical Blanking.		
0xB976 VAR(0x0E, 0x0176)	**15:0**	**0x0000**	**stat_ae_histogram_45 (RO)**
	luminance statistics histogram bin 45 This value is unsigned. Updates during Vertical Blanking.		
0xB978 VAR(0x0E, 0x0178)	**15:0**	**0x0000**	**stat_ae_histogram_46 (RO)**
	luminance statistics histogram bin 46 This value is unsigned. Updates during Vertical Blanking.		
0xB97A VAR(0x0E, 0x017A)	**15:0**	**0x0000**	**stat_ae_histogram_47 (RO)**
	luminance statistics histogram bin 47 This value is unsigned. Updates during Vertical Blanking.		
0xB97C VAR(0x0E, 0x017C)	**15:0**	**0x0000**	**stat_ae_histogram_48 (RO)**
	luminance statistics histogram bin 48 This value is unsigned. Updates during Vertical Blanking.		
0xB97E VAR(0x0E, 0x017E)	**15:0**	**0x0000**	**stat_ae_histogram_49 (RO)**
	luminance statistics histogram bin 49 This value is unsigned. Updates during Vertical Blanking.		
0xB980 VAR(0x0E, 0x0180)	**15:0**	**0x0000**	**stat_ae_histogram_50 (RO)**
	luminance statistics histogram bin 50 This value is unsigned. Updates during Vertical Blanking.		
0xB982 VAR(0x0E, 0x0182)	**15:0**	**0x0000**	**stat_ae_histogram_51 (RO)**
	luminance statistics histogram bin 51 This value is unsigned. Updates during Vertical Blanking.		
0xB984 VAR(0x0E, 0x0184)	**15:0**	**0x0000**	**stat_ae_histogram_52 (RO)**
	luminance statistics histogram bin 52 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB986 VAR(0x0E, 0x0186)	**15:0**	**0x0000**	**stat_ae_histogram_53 (RO)**
	luminance statistics histogram bin 53 This value is unsigned. Updates during Vertical Blanking.		
0xB988 VAR(0x0E, 0x0188)	**15:0**	**0x0000**	**stat_ae_histogram_54 (RO)**
	luminance statistics histogram bin 54 This value is unsigned. Updates during Vertical Blanking.		
0xB98A VAR(0x0E, 0x018A)	**15:0**	**0x0000**	**stat_ae_histogram_55 (RO)**
	luminance statistics histogram bin 55 This value is unsigned. Updates during Vertical Blanking.		
0xB98C VAR(0x0E, 0x018C)	**15:0**	**0x0000**	**stat_ae_histogram_56 (RO)**
	luminance statistics histogram bin 56 This value is unsigned. Updates during Vertical Blanking.		
0xB98E VAR(0x0E, 0x018E)	**15:0**	**0x0000**	**stat_ae_histogram_57 (RO)**
	luminance statistics histogram bin 57 This value is unsigned. Updates during Vertical Blanking.		
0xB990 VAR(0x0E, 0x0190)	**15:0**	**0x0000**	**stat_ae_histogram_58 (RO)**
	luminance statistics histogram bin 58 This value is unsigned. Updates during Vertical Blanking.		
0xB992 VAR(0x0E, 0x0192)	**15:0**	**0x0000**	**stat_ae_histogram_59 (RO)**
	luminance statistics histogram bin 59 This value is unsigned. Updates during Vertical Blanking.		
0xB994 VAR(0x0E, 0x0194)	**15:0**	**0x0000**	**stat_ae_histogram_60 (RO)**
	luminance statistics histogram bin 60 This value is unsigned. Updates during Vertical Blanking.		
0xB996 VAR(0x0E, 0x0196)	**15:0**	**0x0000**	**stat_ae_histogram_61 (RO)**
	luminance statistics histogram bin 61 This value is unsigned. Updates during Vertical Blanking.		
0xB998 VAR(0x0E, 0x0198)	**15:0**	**0x0000**	**stat_ae_histogram_62 (RO)**
	luminance statistics histogram bin 62 This value is unsigned. Updates during Vertical Blanking.		
0xB99A VAR(0x0E, 0x019A)	**15:0**	**0x0000**	**stat_ae_histogram_63 (RO)**
	luminance statistics histogram bin 63 This value is unsigned. Updates during Vertical Blanking.		
0xB99C VAR(0x0E, 0x019C)	**15:0**	**0x0000**	**stat_ae_histogram_64 (RO)**
	luminance statistics histogram bin 64 This value is unsigned. Updates during Vertical Blanking.		
0xB99E VAR(0x0E, 0x019E)	**15:0**	**0x0000**	**stat_ae_histogram_65 (RO)**
	luminance statistics histogram bin 65 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB9A0 VAR(0x0E, 0x01A0)	**15:0**	**0x0000**	**stat_ae_histogram_66 (RO)**
	luminance statistics histogram bin 66 This value is unsigned. Updates during Vertical Blanking.		
0xB9A2 VAR(0x0E, 0x01A2)	**15:0**	**0x0000**	**stat_ae_histogram_67 (RO)**
	luminance statistics histogram bin 67 This value is unsigned. Updates during Vertical Blanking.		
0xB9A4 VAR(0x0E, 0x01A4)	**15:0**	**0x0000**	**stat_ae_histogram_68 (RO)**
	luminance statistics histogram bin 68 This value is unsigned. Updates during Vertical Blanking.		
0xB9A6 VAR(0x0E, 0x01A6)	**15:0**	**0x0000**	**stat_ae_histogram_69 (RO)**
	luminance statistics histogram bin 69 This value is unsigned. Updates during Vertical Blanking.		
0xB9A8 VAR(0x0E, 0x01A8)	**15:0**	**0x0000**	**stat_ae_histogram_70 (RO)**
	luminance statistics histogram bin 70 This value is unsigned. Updates during Vertical Blanking.		
0xB9AA VAR(0x0E, 0x01AA)	**15:0**	**0x0000**	**stat_ae_histogram_71 (RO)**
	luminance statistics histogram bin 71 This value is unsigned. Updates during Vertical Blanking.		
0xB9AC VAR(0x0E, 0x01AC)	**15:0**	**0x0000**	**stat_ae_histogram_72 (RO)**
	luminance statistics histogram bin 72 This value is unsigned. Updates during Vertical Blanking.		
0xB9AE VAR(0x0E, 0x01AE)	**15:0**	**0x0000**	**stat_ae_histogram_73 (RO)**
	luminance statistics histogram bin 73 This value is unsigned. Updates during Vertical Blanking.		
0xB9B0 VAR(0x0E, 0x01B0)	**15:0**	**0x0000**	**stat_ae_histogram_74 (RO)**
	luminance statistics histogram bin 74 This value is unsigned. Updates during Vertical Blanking.		
0xB9B2 VAR(0x0E, 0x01B2)	**15:0**	**0x0000**	**stat_ae_histogram_75 (RO)**
	luminance statistics histogram bin 75 This value is unsigned. Updates during Vertical Blanking.		
0xB9B4 VAR(0x0E, 0x01B4)	**15:0**	**0x0000**	**stat_ae_histogram_76 (RO)**
	luminance statistics histogram bin 76 This value is unsigned. Updates during Vertical Blanking.		
0xB9B6 VAR(0x0E, 0x01B6)	**15:0**	**0x0000**	**stat_ae_histogram_77 (RO)**
	luminance statistics histogram bin 77 This value is unsigned. Updates during Vertical Blanking.		
0xB9B8 VAR(0x0E, 0x01B8)	**15:0**	**0x0000**	**stat_ae_histogram_78 (RO)**
	luminance statistics histogram bin 78 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB9BA VAR(0x0E, 0x01BA)	**15:0**	**0x0000**	**stat_ae_histogram_79 (RO)**
	luminance statistics histogram bin 79 This value is unsigned. Updates during Vertical Blanking.		
0xB9BC VAR(0x0E, 0x01BC)	**15:0**	**0x0000**	**stat_ae_histogram_80 (RO)**
	luminance statistics histogram bin 80 This value is unsigned. Updates during Vertical Blanking.		
0xB9BE VAR(0x0E, 0x01BE)	**15:0**	**0x0000**	**stat_ae_histogram_81 (RO)**
	luminance statistics histogram bin 81 This value is unsigned. Updates during Vertical Blanking.		
0xB9C0 VAR(0x0E, 0x01C0)	**15:0**	**0x0000**	**stat_ae_histogram_82 (RO)**
	luminance statistics histogram bin 82 This value is unsigned. Updates during Vertical Blanking.		
0xB9C2 VAR(0x0E, 0x01C2)	**15:0**	**0x0000**	**stat_ae_histogram_83 (RO)**
	luminance statistics histogram bin 83 This value is unsigned. Updates during Vertical Blanking.		
0xB9C4 VAR(0x0E, 0x01C4)	**15:0**	**0x0000**	**stat_ae_histogram_84 (RO)**
	luminance statistics histogram bin 84 This value is unsigned. Updates during Vertical Blanking.		
0xB9C6 VAR(0x0E, 0x01C6)	**15:0**	**0x0000**	**stat_ae_histogram_85 (RO)**
	luminance statistics histogram bin 85 This value is unsigned. Updates during Vertical Blanking.		
0xB9C8 VAR(0x0E, 0x01C8)	**15:0**	**0x0000**	**stat_ae_histogram_86 (RO)**
	luminance statistics histogram bin 86 This value is unsigned. Updates during Vertical Blanking.		
0xB9CA VAR(0x0E, 0x01CA)	**15:0**	**0x0000**	**stat_ae_histogram_87 (RO)**
	luminance statistics histogram bin 87 This value is unsigned. Updates during Vertical Blanking.		
0xB9CC VAR(0x0E, 0x01CC)	**15:0**	**0x0000**	**stat_ae_histogram_88 (RO)**
	luminance statistics histogram bin 88 This value is unsigned. Updates during Vertical Blanking.		
0xB9CE VAR(0x0E, 0x01CE)	**15:0**	**0x0000**	**stat_ae_histogram_89 (RO)**
	luminance statistics histogram bin 89 This value is unsigned. Updates during Vertical Blanking.		
0xB9D0 VAR(0x0E, 0x01D0)	**15:0**	**0x0000**	**stat_ae_histogram_90 (RO)**
	luminance statistics histogram bin 90 This value is unsigned. Updates during Vertical Blanking.		
0xB9D2 VAR(0x0E, 0x01D2)	**15:0**	**0x0000**	**stat_ae_histogram_91 (RO)**
	luminance statistics histogram bin 91 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB9D4 VAR(0x0E, 0x01D4)	**15:0**	**0x0000**	**stat_ae_histogram_92 (RO)**
	luminance statistics histogram bin 92 This value is unsigned. Updates during Vertical Blanking.		
0xB9D6 VAR(0x0E, 0x01D6)	**15:0**	**0x0000**	**stat_ae_histogram_93 (RO)**
	luminance statistics histogram bin 93 This value is unsigned. Updates during Vertical Blanking.		
0xB9D8 VAR(0x0E, 0x01D8)	**15:0**	**0x0000**	**stat_ae_histogram_94 (RO)**
	luminance statistics histogram bin 94 This value is unsigned. Updates during Vertical Blanking.		
0xB9DA VAR(0x0E, 0x01DA)	**15:0**	**0x0000**	**stat_ae_histogram_95 (RO)**
	luminance statistics histogram bin 95 This value is unsigned. Updates during Vertical Blanking.		
0xB9DC VAR(0x0E, 0x01DC)	**15:0**	**0x0000**	**stat_ae_histogram_96 (RO)**
	luminance statistics histogram bin 96 This value is unsigned. Updates during Vertical Blanking.		
0xB9DE VAR(0x0E, 0x01DE)	**15:0**	**0x0000**	**stat_ae_histogram_97 (RO)**
	luminance statistics histogram bin 97 This value is unsigned. Updates during Vertical Blanking.		
0xB9E0 VAR(0x0E, 0x01E0)	**15:0**	**0x0000**	**stat_ae_histogram_98 (RO)**
	luminance statistics histogram bin 98 This value is unsigned. Updates during Vertical Blanking.		
0xB9E2 VAR(0x0E, 0x01E2)	**15:0**	**0x0000**	**stat_ae_histogram_99 (RO)**
	luminance statistics histogram bin 99 This value is unsigned. Updates during Vertical Blanking.		
0xB9E4 VAR(0x0E, 0x01E4)	**15:0**	**0x0000**	**stat_ae_histogram_100 (RO)**
	luminance statistics histogram bin 100 This value is unsigned. Updates during Vertical Blanking.		
0xB9E6 VAR(0x0E, 0x01E6)	**15:0**	**0x0000**	**stat_ae_histogram_101 (RO)**
	luminance statistics histogram bin 101 This value is unsigned. Updates during Vertical Blanking.		
0xB9E8 VAR(0x0E, 0x01E8)	**15:0**	**0x0000**	**stat_ae_histogram_102 (RO)**
	luminance statistics histogram bin 102 This value is unsigned. Updates during Vertical Blanking.		
0xB9EA VAR(0x0E, 0x01EA)	**15:0**	**0x0000**	**stat_ae_histogram_103 (RO)**
	luminance statistics histogram bin 103 This value is unsigned. Updates during Vertical Blanking.		
0xB9EC VAR(0x0E, 0x01EC)	**15:0**	**0x0000**	**stat_ae_histogram_104 (RO)**
	luminance statistics histogram bin 104 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xB9EE VAR(0x0E, 0x01EE)	15:0	0x0000	stat_ae_histogram_105 (RO)
	luminance statistics histogram bin 105 This value is unsigned. Updates during Vertical Blanking.		
0xB9F0 VAR(0x0E, 0x01F0)	15:0	0x0000	stat_ae_histogram_106 (RO)
	luminance statistics histogram bin 106 This value is unsigned. Updates during Vertical Blanking.		
0xB9F2 VAR(0x0E, 0x01F2)	15:0	0x0000	stat_ae_histogram_107 (RO)
	luminance statistics histogram bin 107 This value is unsigned. Updates during Vertical Blanking.		
0xB9F4 VAR(0x0E, 0x01F4)	15:0	0x0000	stat_ae_histogram_108 (RO)
	luminance statistics histogram bin 108 This value is unsigned. Updates during Vertical Blanking.		
0xB9F6 VAR(0x0E, 0x01F6)	15:0	0x0000	stat_ae_histogram_109 (RO)
	luminance statistics histogram bin 109 This value is unsigned. Updates during Vertical Blanking.		
0xB9F8 VAR(0x0E, 0x01F8)	15:0	0x0000	stat_ae_histogram_110 (RO)
	luminance statistics histogram bin 110 This value is unsigned. Updates during Vertical Blanking.		
0xB9FA VAR(0x0E, 0x01FA)	15:0	0x0000	stat_ae_histogram_111 (RO)
	luminance statistics histogram bin 111 This value is unsigned. Updates during Vertical Blanking.		
0xB9FC VAR(0x0E, 0x01FC)	15:0	0x0000	stat_ae_histogram_112 (RO)
	luminance statistics histogram bin 112 This value is unsigned. Updates during Vertical Blanking.		
0xB9FE VAR(0x0E, 0x01FE)	15:0	0x0000	stat_ae_histogram_113 (RO)
	luminance statistics histogram bin 113 This value is unsigned. Updates during Vertical Blanking.		
0xBA00 VAR(0x0E, 0x0200)	15:0	0x0000	stat_ae_histogram_114 (RO)
	luminance statistics histogram bin 114 This value is unsigned. Updates during Vertical Blanking.		
0xBA02 VAR(0x0E, 0x0202)	15:0	0x0000	stat_ae_histogram_115 (RO)
	luminance statistics histogram bin 115 This value is unsigned. Updates during Vertical Blanking.		
0xBA04 VAR(0x0E, 0x0204)	15:0	0x0000	stat_ae_histogram_116 (RO)
	luminance statistics histogram bin 116 This value is unsigned. Updates during Vertical Blanking.		
0xBA06 VAR(0x0E, 0x0206)	15:0	0x0000	stat_ae_histogram_117 (RO)
	luminance statistics histogram bin 117 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBA08 VAR(0x0E, 0x0208)	**15:0**	**0x0000**	**stat_ae_histogram_118 (RO)**
	luminance statistics histogram bin 118 This value is unsigned. Updates during Vertical Blanking.		
0xBA0A VAR(0x0E, 0x020A)	**15:0**	**0x0000**	**stat_ae_histogram_119 (RO)**
	luminance statistics histogram bin 119 This value is unsigned. Updates during Vertical Blanking.		
0xBA0C VAR(0x0E, 0x020C)	**15:0**	**0x0000**	**stat_ae_histogram_120 (RO)**
	luminance statistics histogram bin 120 This value is unsigned. Updates during Vertical Blanking.		
0xBA0E VAR(0x0E, 0x020E)	**15:0**	**0x0000**	**stat_ae_histogram_121 (RO)**
	luminance statistics histogram bin 121 This value is unsigned. Updates during Vertical Blanking.		
0xBA10 VAR(0x0E, 0x0210)	**15:0**	**0x0000**	**stat_ae_histogram_122 (RO)**
	luminance statistics histogram bin 122 This value is unsigned. Updates during Vertical Blanking.		
0xBA12 VAR(0x0E, 0x0212)	**15:0**	**0x0000**	**stat_ae_histogram_123 (RO)**
	luminance statistics histogram bin 123 This value is unsigned. Updates during Vertical Blanking.		
0xBA14 VAR(0x0E, 0x0214)	**15:0**	**0x0000**	**stat_ae_histogram_124 (RO)**
	luminance statistics histogram bin 124 This value is unsigned. Updates during Vertical Blanking.		
0xBA16 VAR(0x0E, 0x0216)	**15:0**	**0x0000**	**stat_ae_histogram_125 (RO)**
	luminance statistics histogram bin 125 This value is unsigned. Updates during Vertical Blanking.		
0xBA18 VAR(0x0E, 0x0218)	**15:0**	**0x0000**	**stat_ae_histogram_126 (RO)**
	luminance statistics histogram bin 126 This value is unsigned. Updates during Vertical Blanking.		
0xBA1A VAR(0x0E, 0x021A)	**15:0**	**0x0000**	**stat_ae_histogram_127 (RO)**
	luminance statistics histogram bin 127 This value is unsigned. Updates during Vertical Blanking.		
0xBA1C VAR(0x0E, 0x021C)	**15:0**	**0x0000**	**stat_ae_histogram_128 (RO)**
	luminance statistics histogram bin 128 This value is unsigned. Updates during Vertical Blanking.		
0xBA1E VAR(0x0E, 0x021E)	**15:0**	**0x0000**	**stat_ae_histogram_129 (RO)**
	luminance statistics histogram bin 129 This value is unsigned. Updates during Vertical Blanking.		
0xBA20 VAR(0x0E, 0x0220)	**15:0**	**0x0000**	**stat_ae_histogram_130 (RO)**
	luminance statistics histogram bin 130 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBA22 VAR(0x0E, 0x0222)	**15:0**	**0x0000**	**stat_ae_histogram_131 (RO)**
	luminance statistics histogram bin 131 This value is unsigned. Updates during Vertical Blanking.		
0xBA24 VAR(0x0E, 0x0224)	**15:0**	**0x0000**	**stat_ae_histogram_132 (RO)**
	luminance statistics histogram bin 132 This value is unsigned. Updates during Vertical Blanking.		
0xBA26 VAR(0x0E, 0x0226)	**15:0**	**0x0000**	**stat_ae_histogram_133 (RO)**
	luminance statistics histogram bin 133 This value is unsigned. Updates during Vertical Blanking.		
0xBA28 VAR(0x0E, 0x0228)	**15:0**	**0x0000**	**stat_ae_histogram_134 (RO)**
	luminance statistics histogram bin 134 This value is unsigned. Updates during Vertical Blanking.		
0xBA2A VAR(0x0E, 0x022A)	**15:0**	**0x0000**	**stat_ae_histogram_135 (RO)**
	luminance statistics histogram bin 135 This value is unsigned. Updates during Vertical Blanking.		
0xBA2C VAR(0x0E, 0x022C)	**15:0**	**0x0000**	**stat_ae_histogram_136 (RO)**
	luminance statistics histogram bin 136 This value is unsigned. Updates during Vertical Blanking.		
0xBA2E VAR(0x0E, 0x022E)	**15:0**	**0x0000**	**stat_ae_histogram_137 (RO)**
	luminance statistics histogram bin 137 This value is unsigned. Updates during Vertical Blanking.		
0xBA30 VAR(0x0E, 0x0230)	**15:0**	**0x0000**	**stat_ae_histogram_138 (RO)**
	luminance statistics histogram bin 138 This value is unsigned. Updates during Vertical Blanking.		
0xBA32 VAR(0x0E, 0x0232)	**15:0**	**0x0000**	**stat_ae_histogram_139 (RO)**
	luminance statistics histogram bin 139 This value is unsigned. Updates during Vertical Blanking.		
0xBA34 VAR(0x0E, 0x0234)	**15:0**	**0x0000**	**stat_ae_histogram_140 (RO)**
	luminance statistics histogram bin 140 This value is unsigned. Updates during Vertical Blanking.		
0xBA36 VAR(0x0E, 0x0236)	**15:0**	**0x0000**	**stat_ae_histogram_141 (RO)**
	luminance statistics histogram bin 141 This value is unsigned. Updates during Vertical Blanking.		
0xBA38 VAR(0x0E, 0x0238)	**15:0**	**0x0000**	**stat_ae_histogram_142 (RO)**
	luminance statistics histogram bin 142 This value is unsigned. Updates during Vertical Blanking.		
0xBA3A VAR(0x0E, 0x023A)	**15:0**	**0x0000**	**stat_ae_histogram_143 (RO)**
	luminance statistics histogram bin 143 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBA3C VAR(0x0E, 0x023C)	**15:0**	**0x0000**	**stat_ae_histogram_144 (RO)**
	luminance statistics histogram bin 144 This value is unsigned. Updates during Vertical Blanking.		
0xBA3E VAR(0x0E, 0x023E)	**15:0**	**0x0000**	**stat_ae_histogram_145 (RO)**
	luminance statistics histogram bin 145 This value is unsigned. Updates during Vertical Blanking.		
0xBA40 VAR(0x0E, 0x0240)	**15:0**	**0x0000**	**stat_ae_histogram_146 (RO)**
	luminance statistics histogram bin 146 This value is unsigned. Updates during Vertical Blanking.		
0xBA42 VAR(0x0E, 0x0242)	**15:0**	**0x0000**	**stat_ae_histogram_147 (RO)**
	luminance statistics histogram bin 147 This value is unsigned. Updates during Vertical Blanking.		
0xBA44 VAR(0x0E, 0x0244)	**15:0**	**0x0000**	**stat_ae_histogram_148 (RO)**
	luminance statistics histogram bin 148 This value is unsigned. Updates during Vertical Blanking.		
0xBA46 VAR(0x0E, 0x0246)	**15:0**	**0x0000**	**stat_ae_histogram_149 (RO)**
	luminance statistics histogram bin 149 This value is unsigned. Updates during Vertical Blanking.		
0xBA48 VAR(0x0E, 0x0248)	**15:0**	**0x0000**	**stat_ae_histogram_150 (RO)**
	luminance statistics histogram bin 150 This value is unsigned. Updates during Vertical Blanking.		
0xBA4A VAR(0x0E, 0x024A)	**15:0**	**0x0000**	**stat_ae_histogram_151 (RO)**
	luminance statistics histogram bin 151 This value is unsigned. Updates during Vertical Blanking.		
0xBA4C VAR(0x0E, 0x024C)	**15:0**	**0x0000**	**stat_ae_histogram_152 (RO)**
	luminance statistics histogram bin 152 This value is unsigned. Updates during Vertical Blanking.		
0xBA4E VAR(0x0E, 0x024E)	**15:0**	**0x0000**	**stat_ae_histogram_153 (RO)**
	luminance statistics histogram bin 153 This value is unsigned. Updates during Vertical Blanking.		
0xBA50 VAR(0x0E, 0x0250)	**15:0**	**0x0000**	**stat_ae_histogram_154 (RO)**
	luminance statistics histogram bin 154 This value is unsigned. Updates during Vertical Blanking.		
0xBA52 VAR(0x0E, 0x0252)	**15:0**	**0x0000**	**stat_ae_histogram_155 (RO)**
	luminance statistics histogram bin 155 This value is unsigned. Updates during Vertical Blanking.		
0xBA54 VAR(0x0E, 0x0254)	**15:0**	**0x0000**	**stat_ae_histogram_156 (RO)**
	luminance statistics histogram bin 156 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBA56 VAR(0x0E, 0x0256)	**15:0**	**0x0000**	**stat_ae_histogram_157 (RO)**
	luminance statistics histogram bin 157 This value is unsigned. Updates during Vertical Blanking.		
0xBA58 VAR(0x0E, 0x0258)	**15:0**	**0x0000**	**stat_ae_histogram_158 (RO)**
	luminance statistics histogram bin 158 This value is unsigned. Updates during Vertical Blanking.		
0xBA5A VAR(0x0E, 0x025A)	**15:0**	**0x0000**	**stat_ae_histogram_159 (RO)**
	luminance statistics histogram bin 159 This value is unsigned. Updates during Vertical Blanking.		
0xBA5C VAR(0x0E, 0x025C)	**15:0**	**0x0000**	**stat_ae_histogram_160 (RO)**
	luminance statistics histogram bin 160 This value is unsigned. Updates during Vertical Blanking.		
0xBA5E VAR(0x0E, 0x025E)	**15:0**	**0x0000**	**stat_ae_histogram_161 (RO)**
	luminance statistics histogram bin 161 This value is unsigned. Updates during Vertical Blanking.		
0xBA60 VAR(0x0E, 0x0260)	**15:0**	**0x0000**	**stat_ae_histogram_162 (RO)**
	luminance statistics histogram bin 162 This value is unsigned. Updates during Vertical Blanking.		
0xBA62 VAR(0x0E, 0x0262)	**15:0**	**0x0000**	**stat_ae_histogram_163 (RO)**
	luminance statistics histogram bin 163 This value is unsigned. Updates during Vertical Blanking.		
0xBA64 VAR(0x0E, 0x0264)	**15:0**	**0x0000**	**stat_ae_histogram_164 (RO)**
	luminance statistics histogram bin 164 This value is unsigned. Updates during Vertical Blanking.		
0xBA66 VAR(0x0E, 0x0266)	**15:0**	**0x0000**	**stat_ae_histogram_165 (RO)**
	luminance statistics histogram bin 165 This value is unsigned. Updates during Vertical Blanking.		
0xBA68 VAR(0x0E, 0x0268)	**15:0**	**0x0000**	**stat_ae_histogram_166 (RO)**
	luminance statistics histogram bin 166 This value is unsigned. Updates during Vertical Blanking.		
0xBA6A VAR(0x0E, 0x026A)	**15:0**	**0x0000**	**stat_ae_histogram_167 (RO)**
	luminance statistics histogram bin 167 This value is unsigned. Updates during Vertical Blanking.		
0xBA6C VAR(0x0E, 0x026C)	**15:0**	**0x0000**	**stat_ae_histogram_168 (RO)**
	luminance statistics histogram bin 168 This value is unsigned. Updates during Vertical Blanking.		
0xBA6E VAR(0x0E, 0x026E)	**15:0**	**0x0000**	**stat_ae_histogram_169 (RO)**
	luminance statistics histogram bin 169 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBA70 VAR(0x0E, 0x0270)	**15:0**	**0x0000**	**stat_ae_histogram_170 (RO)**
	luminance statistics histogram bin 170 This value is unsigned. Updates during Vertical Blanking.		
0xBA72 VAR(0x0E, 0x0272)	**15:0**	**0x0000**	**stat_ae_histogram_171 (RO)**
	luminance statistics histogram bin 171 This value is unsigned. Updates during Vertical Blanking.		
0xBA74 VAR(0x0E, 0x0274)	**15:0**	**0x0000**	**stat_ae_histogram_172 (RO)**
	luminance statistics histogram bin 172 This value is unsigned. Updates during Vertical Blanking.		
0xBA76 VAR(0x0E, 0x0276)	**15:0**	**0x0000**	**stat_ae_histogram_173 (RO)**
	luminance statistics histogram bin 173 This value is unsigned. Updates during Vertical Blanking.		
0xBA78 VAR(0x0E, 0x0278)	**15:0**	**0x0000**	**stat_ae_histogram_174 (RO)**
	luminance statistics histogram bin 174 This value is unsigned. Updates during Vertical Blanking.		
0xBA7A VAR(0x0E, 0x027A)	**15:0**	**0x0000**	**stat_ae_histogram_175 (RO)**
	luminance statistics histogram bin 175 This value is unsigned. Updates during Vertical Blanking.		
0xBA7C VAR(0x0E, 0x027C)	**15:0**	**0x0000**	**stat_ae_histogram_176 (RO)**
	luminance statistics histogram bin 176 This value is unsigned. Updates during Vertical Blanking.		
0xBA7E VAR(0x0E, 0x027E)	**15:0**	**0x0000**	**stat_ae_histogram_177 (RO)**
	luminance statistics histogram bin 177 This value is unsigned. Updates during Vertical Blanking.		
0xBA80 VAR(0x0E, 0x0280)	**15:0**	**0x0000**	**stat_ae_histogram_178 (RO)**
	luminance statistics histogram bin 178 This value is unsigned. Updates during Vertical Blanking.		
0xBA82 VAR(0x0E, 0x0282)	**15:0**	**0x0000**	**stat_ae_histogram_179 (RO)**
	luminance statistics histogram bin 179 This value is unsigned. Updates during Vertical Blanking.		
0xBA84 VAR(0x0E, 0x0284)	**15:0**	**0x0000**	**stat_ae_histogram_180 (RO)**
	luminance statistics histogram bin 180 This value is unsigned. Updates during Vertical Blanking.		
0xBA86 VAR(0x0E, 0x0286)	**15:0**	**0x0000**	**stat_ae_histogram_181 (RO)**
	luminance statistics histogram bin 181 This value is unsigned. Updates during Vertical Blanking.		
0xBA88 VAR(0x0E, 0x0288)	**15:0**	**0x0000**	**stat_ae_histogram_182 (RO)**
	luminance statistics histogram bin 182 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBA8A VAR(0x0E, 0x028A)	**15:0**	**0x0000**	**stat_ae_histogram_183 (RO)**
	luminance statistics histogram bin 183 This value is unsigned. Updates during Vertical Blanking.		
0xBA8C VAR(0x0E, 0x028C)	**15:0**	**0x0000**	**stat_ae_histogram_184 (RO)**
	luminance statistics histogram bin 184 This value is unsigned. Updates during Vertical Blanking.		
0xBA8E VAR(0x0E, 0x028E)	**15:0**	**0x0000**	**stat_ae_histogram_185 (RO)**
	luminance statistics histogram bin 185 This value is unsigned. Updates during Vertical Blanking.		
0xBA90 VAR(0x0E, 0x0290)	**15:0**	**0x0000**	**stat_ae_histogram_186 (RO)**
	luminance statistics histogram bin 186 This value is unsigned. Updates during Vertical Blanking.		
0xBA92 VAR(0x0E, 0x0292)	**15:0**	**0x0000**	**stat_ae_histogram_187 (RO)**
	luminance statistics histogram bin 187 This value is unsigned. Updates during Vertical Blanking.		
0xBA94 VAR(0x0E, 0x0294)	**15:0**	**0x0000**	**stat_ae_histogram_188 (RO)**
	luminance statistics histogram bin 188 This value is unsigned. Updates during Vertical Blanking.		
0xBA96 VAR(0x0E, 0x0296)	**15:0**	**0x0000**	**stat_ae_histogram_189 (RO)**
	luminance statistics histogram bin 189 This value is unsigned. Updates during Vertical Blanking.		
0xBA98 VAR(0x0E, 0x0298)	**15:0**	**0x0000**	**stat_ae_histogram_190 (RO)**
	luminance statistics histogram bin 190 This value is unsigned. Updates during Vertical Blanking.		
0xBA9A VAR(0x0E, 0x029A)	**15:0**	**0x0000**	**stat_ae_histogram_191 (RO)**
	luminance statistics histogram bin 191 This value is unsigned. Updates during Vertical Blanking.		
0xBA9C VAR(0x0E, 0x029C)	**15:0**	**0x0000**	**stat_ae_histogram_192 (RO)**
	luminance statistics histogram bin 192 This value is unsigned. Updates during Vertical Blanking.		
0xBA9E VAR(0x0E, 0x029E)	**15:0**	**0x0000**	**stat_ae_histogram_193 (RO)**
	luminance statistics histogram bin 193 This value is unsigned. Updates during Vertical Blanking.		
0xBAA0 VAR(0x0E, 0x02A0)	**15:0**	**0x0000**	**stat_ae_histogram_194 (RO)**
	luminance statistics histogram bin 194 This value is unsigned. Updates during Vertical Blanking.		
0xBAA2 VAR(0x0E, 0x02A2)	**15:0**	**0x0000**	**stat_ae_histogram_195 (RO)**
	luminance statistics histogram bin 195 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBAA4 VAR(0x0E, 0x02A4)	**15:0**	**0x0000**	**stat_ae_histogram_196 (RO)**
	luminance statistics histogram bin 196 This value is unsigned. Updates during Vertical Blanking.		
0xBAA6 VAR(0x0E, 0x02A6)	**15:0**	**0x0000**	**stat_ae_histogram_197 (RO)**
	luminance statistics histogram bin 197 This value is unsigned. Updates during Vertical Blanking.		
0xBAA8 VAR(0x0E, 0x02A8)	**15:0**	**0x0000**	**stat_ae_histogram_198 (RO)**
	luminance statistics histogram bin 198 This value is unsigned. Updates during Vertical Blanking.		
0xBAAA VAR(0x0E, 0x02AA)	**15:0**	**0x0000**	**stat_ae_histogram_199 (RO)**
	luminance statistics histogram bin 199 This value is unsigned. Updates during Vertical Blanking.		
0xBAAC VAR(0x0E, 0x02AC)	**15:0**	**0x0000**	**stat_ae_histogram_200 (RO)**
	luminance statistics histogram bin 200 This value is unsigned. Updates during Vertical Blanking.		
0xBAAE VAR(0x0E, 0x02AE)	**15:0**	**0x0000**	**stat_ae_histogram_201 (RO)**
	luminance statistics histogram bin 201 This value is unsigned. Updates during Vertical Blanking.		
0xBAB0 VAR(0x0E, 0x02B0)	**15:0**	**0x0000**	**stat_ae_histogram_202 (RO)**
	luminance statistics histogram bin 202 This value is unsigned. Updates during Vertical Blanking.		
0xBAB2 VAR(0x0E, 0x02B2)	**15:0**	**0x0000**	**stat_ae_histogram_203 (RO)**
	luminance statistics histogram bin 203 This value is unsigned. Updates during Vertical Blanking.		
0xBAB4 VAR(0x0E, 0x02B4)	**15:0**	**0x0000**	**stat_ae_histogram_204 (RO)**
	luminance statistics histogram bin 204 This value is unsigned. Updates during Vertical Blanking.		
0xBAB6 VAR(0x0E, 0x02B6)	**15:0**	**0x0000**	**stat_ae_histogram_205 (RO)**
	luminance statistics histogram bin 205 This value is unsigned. Updates during Vertical Blanking.		
0xBAB8 VAR(0x0E, 0x02B8)	**15:0**	**0x0000**	**stat_ae_histogram_206 (RO)**
	luminance statistics histogram bin 206 This value is unsigned. Updates during Vertical Blanking.		
0xBABA VAR(0x0E, 0x02BA)	**15:0**	**0x0000**	**stat_ae_histogram_207 (RO)**
	luminance statistics histogram bin 207 This value is unsigned. Updates during Vertical Blanking.		
0xBABC VAR(0x0E, 0x02BC)	**15:0**	**0x0000**	**stat_ae_histogram_208 (RO)**
	luminance statistics histogram bin 208 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBABE VAR(0x0E, 0x02BE)	15:0	0x0000	stat_ae_histogram_209 (RO)
	luminance statistics histogram bin 209 This value is unsigned. Updates during Vertical Blanking.		
0xBAC0 VAR(0x0E, 0x02C0)	15:0	0x0000	stat_ae_histogram_210 (RO)
	luminance statistics histogram bin 210 This value is unsigned. Updates during Vertical Blanking.		
0xBAC2 VAR(0x0E, 0x02C2)	15:0	0x0000	stat_ae_histogram_211 (RO)
	luminance statistics histogram bin 211 This value is unsigned. Updates during Vertical Blanking.		
0xBAC4 VAR(0x0E, 0x02C4)	15:0	0x0000	stat_ae_histogram_212 (RO)
	luminance statistics histogram bin 212 This value is unsigned. Updates during Vertical Blanking.		
0xBAC6 VAR(0x0E, 0x02C6)	15:0	0x0000	stat_ae_histogram_213 (RO)
	luminance statistics histogram bin 213 This value is unsigned. Updates during Vertical Blanking.		
0xBAC8 VAR(0x0E, 0x02C8)	15:0	0x0000	stat_ae_histogram_214 (RO)
	luminance statistics histogram bin 214 This value is unsigned. Updates during Vertical Blanking.		
0xBACA VAR(0x0E, 0x02CA)	15:0	0x0000	stat_ae_histogram_215 (RO)
	luminance statistics histogram bin 215 This value is unsigned. Updates during Vertical Blanking.		
0xBACC VAR(0x0E, 0x02CC)	15:0	0x0000	stat_ae_histogram_216 (RO)
	luminance statistics histogram bin 216 This value is unsigned. Updates during Vertical Blanking.		
0xBACE VAR(0x0E, 0x02CE)	15:0	0x0000	stat_ae_histogram_217 (RO)
	luminance statistics histogram bin 217 This value is unsigned. Updates during Vertical Blanking.		
0xBAD0 VAR(0x0E, 0x02D0)	15:0	0x0000	stat_ae_histogram_218 (RO)
	luminance statistics histogram bin 218 This value is unsigned. Updates during Vertical Blanking.		
0xBAD2 VAR(0x0E, 0x02D2)	15:0	0x0000	stat_ae_histogram_219 (RO)
	luminance statistics histogram bin 219 This value is unsigned. Updates during Vertical Blanking.		
0xBAD4 VAR(0x0E, 0x02D4)	15:0	0x0000	stat_ae_histogram_220 (RO)
	luminance statistics histogram bin 220 This value is unsigned. Updates during Vertical Blanking.		
0xBAD6 VAR(0x0E, 0x02D6)	15:0	0x0000	stat_ae_histogram_221 (RO)
	luminance statistics histogram bin 221 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBAD8 VAR(0x0E, 0x02D8)	**15:0**	**0x0000**	**stat_ae_histogram_222 (RO)**
	luminance statistics histogram bin 222 This value is unsigned. Updates during Vertical Blanking.		
0xBADA VAR(0x0E, 0x02DA)	**15:0**	**0x0000**	**stat_ae_histogram_223 (RO)**
	luminance statistics histogram bin 223 This value is unsigned. Updates during Vertical Blanking.		
0xBADC VAR(0x0E, 0x02DC)	**15:0**	**0x0000**	**stat_ae_histogram_224 (RO)**
	luminance statistics histogram bin 224 This value is unsigned. Updates during Vertical Blanking.		
0xBADE VAR(0x0E, 0x02DE)	**15:0**	**0x0000**	**stat_ae_histogram_225 (RO)**
	luminance statistics histogram bin 225 This value is unsigned. Updates during Vertical Blanking.		
0xBAE0 VAR(0x0E, 0x02E0)	**15:0**	**0x0000**	**stat_ae_histogram_226 (RO)**
	luminance statistics histogram bin 226 This value is unsigned. Updates during Vertical Blanking.		
0xBAE2 VAR(0x0E, 0x02E2)	**15:0**	**0x0000**	**stat_ae_histogram_227 (RO)**
	luminance statistics histogram bin 227 This value is unsigned. Updates during Vertical Blanking.		
0xBAE4 VAR(0x0E, 0x02E4)	**15:0**	**0x0000**	**stat_ae_histogram_228 (RO)**
	luminance statistics histogram bin 228 This value is unsigned. Updates during Vertical Blanking.		
0xBAE6 VAR(0x0E, 0x02E6)	**15:0**	**0x0000**	**stat_ae_histogram_229 (RO)**
	luminance statistics histogram bin 229 This value is unsigned. Updates during Vertical Blanking.		
0xBAE8 VAR(0x0E, 0x02E8)	**15:0**	**0x0000**	**stat_ae_histogram_230 (RO)**
	luminance statistics histogram bin 230 This value is unsigned. Updates during Vertical Blanking.		
0xBAEA VAR(0x0E, 0x02EA)	**15:0**	**0x0000**	**stat_ae_histogram_231 (RO)**
	luminance statistics histogram bin 231 This value is unsigned. Updates during Vertical Blanking.		
0xBAEC VAR(0x0E, 0x02EC)	**15:0**	**0x0000**	**stat_ae_histogram_232 (RO)**
	luminance statistics histogram bin 232 This value is unsigned. Updates during Vertical Blanking.		
0xBAEE VAR(0x0E, 0x02EE)	**15:0**	**0x0000**	**stat_ae_histogram_233 (RO)**
	luminance statistics histogram bin 233 This value is unsigned. Updates during Vertical Blanking.		
0xBAF0 VAR(0x0E, 0x02F0)	**15:0**	**0x0000**	**stat_ae_histogram_234 (RO)**
	luminance statistics histogram bin 234 This value is unsigned. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBAF2 VAR(0x0E, 0x02F2)	**15:0**	**0x0000**	**stat_ae_histogram_235 (RO)**
	luminance statistics histogram bin 235 This value is unsigned. Updates during Vertical Blanking.		
0xBAF4 VAR(0x0E, 0x02F4)	**15:0**	**0x0000**	**stat_ae_histogram_236 (RO)**
	luminance statistics histogram bin 236 This value is unsigned. Updates during Vertical Blanking.		
0xBAF6 VAR(0x0E, 0x02F6)	**15:0**	**0x0000**	**stat_ae_histogram_237 (RO)**
	luminance statistics histogram bin 237 This value is unsigned. Updates during Vertical Blanking.		
0xBAF8 VAR(0x0E, 0x02F8)	**15:0**	**0x0000**	**stat_ae_histogram_238 (RO)**
	luminance statistics histogram bin 238 This value is unsigned. Updates during Vertical Blanking.		
0xBAFA VAR(0x0E, 0x02FA)	**15:0**	**0x0000**	**stat_ae_histogram_239 (RO)**
	luminance statistics histogram bin 239 This value is unsigned. Updates during Vertical Blanking.		
0xBAFC VAR(0x0E, 0x02FC)	**15:0**	**0x0000**	**stat_ae_histogram_240 (RO)**
	luminance statistics histogram bin 240 This value is unsigned. Updates during Vertical Blanking.		
0xBAFE VAR(0x0E, 0x02FE)	**15:0**	**0x0000**	**stat_ae_histogram_241 (RO)**
	luminance statistics histogram bin 241 This value is unsigned. Updates during Vertical Blanking.		
0xBB00 VAR(0x0E, 0x0300)	**15:0**	**0x0000**	**stat_ae_histogram_242 (RO)**
	luminance statistics histogram bin 242 This value is unsigned. Updates during Vertical Blanking.		
0xBB02 VAR(0x0E, 0x0302)	**15:0**	**0x0000**	**stat_ae_histogram_243 (RO)**
	luminance statistics histogram bin 243 This value is unsigned. Updates during Vertical Blanking.		
0xBB04 VAR(0x0E, 0x0304)	**15:0**	**0x0000**	**stat_exposure_coarse_integration_time (RO)**
	Coarse integration time during the frame when the statistics were captured This value is unsigned. Updates during Vertical Blanking.		
0xBB06 VAR(0x0E, 0x0306)	**15:0**	**0x0000**	**stat_exposure_fine_integration_time (RO)**
	Fine adjustment for the integration time specified in pixel clocks during the frame when the statistics were captured. This value is unsigned. Updates during Vertical Blanking.		
0xBB08 VAR(0x0E, 0x0308)	**15:0**	**0x0000**	**stat_exposure_analog_red_gain (RO)**
	Analog gain for the red channel during the frame when the statistics were captured. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		
0xBB0A VAR(0x0E, 0x030A)	**15:0**	**0x0000**	**stat_exposure_analog_green1_gain (RO)**
	Analog gain for the green1 channel during the frame when the statistics were captured. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBB0C VAR(0x0E, 0x030C)	**15:0**	**0x0000**	**stat_exposure_analog_green2_gain (RO)**
	Analog gain for the green2 channel during the frame when the statistics were captured. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		
0xBB0E VAR(0x0E, 0x030E)	**15:0**	**0x0000**	**stat_exposure_analog_blue_gain (RO)**
	Analog gain for the blue channel during the frame when the statistics were captured. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		
0xBB10 VAR(0x0E, 0x0310)	**15:0**	**0x0000**	**stat_exposure_frame_length_lines (RO)**
	Number of lines within the frame when the statistics were captured. This value is unsigned. Updates during Vertical Blanking.		
0xBB12 VAR(0x0E, 0x0312)	**15:0**	**0x0000**	**stat_exposure_line_length_pck (RO)**
	Number of pixel clocks for each line during the frame when the statistics were captured. This value is unsigned. Updates during Vertical Blanking.		
0xBB14 VAR(0x0E, 0x0314)	**7:0**	**0x00**	**stat_exposure_column_gain (RO)**
	Column gain selection for all channels during the frame when the statistics were captured. This value is unsigned. Updates during Vertical Blanking.		
0xBB15 VAR(0x0E, 0x0315)	**7:0**	**0x00**	**stat_exposure_dcg_gain (RO)**
	Dual conversion gain state for all channels during the frame when the statistics were captured. This value is unsigned. Updates during Vertical Blanking.		
0xBB16 VAR(0x0E, 0x0316)	**15:0**	**0x0000**	**stat_exposure_dgain_red (RO)**
	Sensor digital gain for the red channel during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		
0xBB18 VAR(0x0E, 0x0318)	**15:0**	**0x0000**	**stat_exposure_dgain_green1 (RO)**
	Sensor digital gain for the green1 channel during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		
0xBB1A VAR(0x0E, 0x031A)	**15:0**	**0x0000**	**stat_exposure_dgain_green2 (RO)**
	Sensor digital gain for the green2 channel during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		
0xBB1C VAR(0x0E, 0x031C)	**15:0**	**0x0000**	**stat_exposure_dgain_blue (RO)**
	Sensor digital gain for the blue channel during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		
0xBB1E VAR(0x0E, 0x031E)	**15:0**	**0x0000**	**stat_exposure_cpipe_dgain_red (RO)**
	Cpipe gain for the red channel during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		
0xBB20 VAR(0x0E, 0x0320)	**15:0**	**0x0000**	**stat_exposure_cpipe_dgain_green1 (RO)**
	Cpipe gain for the green1 channel during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		
0xBB22 VAR(0x0E, 0x0322)	**15:0**	**0x0000**	**stat_exposure_cpipe_dgain_green2 (RO)**
	Cpipe gain for the green2 channel during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		

Table 45. STAT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBB24 VAR(0x0E, 0x0324)	**15:0**	**0x0000**	**stat_exposure_cpipe_dgain_blue (RO)**
	Cpipe gain for the blue channel during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		
0xBB26 VAR(0x0E, 0x0326)	**15:0**	**0x0000**	**stat_exposure_cpipe_dgain_second (RO)**
	Cpipe secondary gain for all channels during the frame when the statistics were captured. This value is unsigned fixed−point with 7 fractional bits. Updates during Vertical Blanking.		

Low Light Variable Descriptions

Table 46. LOW LIGHT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBC02 VAR(0x0F, 0x0002)	**15:0**	**0x0007**	**ll_mode (R/W)**
	15:5	X	Reserved
	4	0x00	Reserved
	3	0x00	ll_enable_fade_to_black Controls the Fade−To−Black mode: 0: Fade−To−Black mode will not be active under low light conditions. 1: Fade−To−Black mode will be active under low light conditions. This value is unsigned. Changes take effect during Vertical Blanking.
	2	0x01	ll_adacd_gr_pixel_weights This mode automatically controls the strength of the noise reduction filter using ADACD Green pixel weights: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect during Vertical Blanking.
	1	0x01	Reserved
	0	0x01	ll_nr_enable Enable automatic control of Noise Reduction (DC and AdaCD): 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect during Vertical Blanking.
	Low light mode control. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 46. LOW LIGHT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBC04 VAR(0x0F, 0x0004)	**15:0**	**0x03FF**	**ll_algo (R/W)**
	15:11	X	Reserved
	10	0x0000	Reserved
	9	0x0001	Reserved
	8	0x0001	Reserved
	7	0x01	Reserved
	6	0x01	Reserved
	5	0x01	Reserved
	4	0x01	Reserved
	3	0x01	Reserved
	2	0x01	Reserved
	1	0x01	Reserved
	0	0x01	Reserved
	Controls the low light algorithms: 0: Disable low light adaptation. 0x3FF: Enable low light adaptation. This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC07 VAR(0x0F, 0x0007)	**7:0**	**0x01**	**ll_gamma_select (R/W)**
	Selects between gamma curves. Gamma selection is overridden when the average luma (ll_average_luma_fade_to_black) is less than the fade−to−black threshold (cam_ll_bright_fade_to_black_luma).0: Interpolate between the contrast gamma curve in bright light and the noise reduction gamma curve in low light. 1: Always use contrast gamma curve. 2: Always use noise reduction gamma curve. This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC0A VAR(0x0F, 0x000A)	**15:0**	**0x0000**	**ll_gamma_contrast_curve_0 (R/W)**
	Gamma curve. This is the knee point value for index 0 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC0C VAR(0x0F, 0x000C)	**15:0**	**0x0000**	**ll_gamma_contrast_curve_1 (R/W)**
	Gamma curve. This is the knee point value for index 128 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC0E VAR(0x0F, 0x000E)	**15:0**	**0x0000**	**ll_gamma_contrast_curve_2 (R/W)**
	Gamma curve. This is the knee point value for index 256 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC10 VAR(0x0F, 0x0010)	**15:0**	**0x0000**	**ll_gamma_contrast_curve_3 (R/W)**
	Gamma curve. This is the knee point value for index 384 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC12 VAR(0x0F, 0x0012)	**15:0**	**0x0000**	**ll_gamma_contrast_curve_4 (R/W)**
	Gamma curve. This is the knee point value for index 512 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC14 VAR(0x0F, 0x0014)	**15:0**	**0x0000**	**ll_gamma_contrast_curve_5 (R/W)**
	Gamma curve. This is the knee point value for index 640 This value is unsigned. Changes take effect during Vertical Blanking.		

Table 46. LOW LIGHT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBC16 VAR(0x0F, 0x0016)	15:0	0x0000	ll_gamma_contrast_curve_6 (R/W)
	Gamma curve. This is the knee point value for index 768 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC18 VAR(0x0F, 0x0018)	15:0	0x0000	ll_gamma_contrast_curve_7 (R/W)
	Gamma curve. This is the knee point value for index 896 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC1A VAR(0x0F, 0x001A)	15:0	0x0000	ll_gamma_contrast_curve_8 (R/W)
	Gamma curve. This is the knee point value for index 1024 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC1C VAR(0x0F, 0x001C)	15:0	0x0000	ll_gamma_contrast_curve_9 (R/W)
	Gamma curve. This is the knee point value for index 1152 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC1E VAR(0x0F, 0x001E)	15:0	0x0000	ll_gamma_contrast_curve_10 (R/W)
	Gamma curve. This is the knee point value for index 1280 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC20 VAR(0x0F, 0x0020)	15:0	0x0000	ll_gamma_contrast_curve_11 (R/W)
	Gamma curve. This is the knee point value for index 1408 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC22 VAR(0x0F, 0x0022)	15:0	0x0000	ll_gamma_contrast_curve_12 (R/W)
	Gamma curve. This is the knee point value for index 1536 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC24 VAR(0x0F, 0x0024)	15:0	0x0000	ll_gamma_contrast_curve_13 (R/W)
	Gamma curve. This is the knee point value for index 1664 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC26 VAR(0x0F, 0x0026)	15:0	0x0000	ll_gamma_contrast_curve_14 (R/W)
	Gamma curve. This is the knee point value for index 1792 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC28 VAR(0x0F, 0x0028)	15:0	0x0000	ll_gamma_contrast_curve_15 (R/W)
	Gamma curve. This is the knee point value for index 1920 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC2A VAR(0x0F, 0x002A)	15:0	0x0000	ll_gamma_contrast_curve_16 (R/W)
	Gamma curve. This is the knee point value for index 2048 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC2C VAR(0x0F, 0x002C)	15:0	0x0000	ll_gamma_contrast_curve_17 (R/W)
	Gamma curve. This is the knee point value for index 2176 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC2E VAR(0x0F, 0x002E)	15:0	0x0000	ll_gamma_contrast_curve_18 (R/W)
	Gamma curve. This is the knee point value for index 2304 This value is unsigned. Changes take effect during Vertical Blanking.		

Table 46. LOW LIGHT VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBC30 VAR(0x0F, 0x0030)	15:0	0x0000	ll_gamma_contrast_curve_19 (R/W)
	Gamma curve. This is the knee point value for index 2432 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC32 VAR(0x0F, 0x0032)	15:0	0x0000	ll_gamma_contrast_curve_20 (R/W)
	Gamma curve. This is the knee point value for index 2560 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC34 VAR(0x0F, 0x0034)	15:0	0x0000	ll_gamma_contrast_curve_21 (R/W)
	Gamma curve. This is the knee point value for index 2688 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC36 VAR(0x0F, 0x0036)	15:0	0x0000	ll_gamma_contrast_curve_22 (R/W)
	Gamma curve. This is the knee point value for index 2816 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC38 VAR(0x0F, 0x0038)	15:0	0x0000	ll_gamma_contrast_curve_23 (R/W)
	Gamma curve. This is the knee point value for index 2944 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC3A VAR(0x0F, 0x003A)	15:0	0x0000	ll_gamma_contrast_curve_24 (R/W)
	Gamma curve. This is the knee point value for index 3072 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC3C VAR(0x0F, 0x003C)	15:0	0x0000	ll_gamma_contrast_curve_25 (R/W)
	Gamma curve. This is the knee point value for index 3200 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC3E VAR(0x0F, 0x003E)	15:0	0x0000	ll_gamma_contrast_curve_26 (R/W)
	Gamma curve. This is the knee point value for index 3328 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC40 VAR(0x0F, 0x0040)	15:0	0x0000	ll_gamma_contrast_curve_27 (R/W)
	Gamma curve. This is the knee point value for index 3456 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC42 VAR(0x0F, 0x0042)	15:0	0x0000	ll_gamma_contrast_curve_28 (R/W)
	Gamma curve. This is the knee point value for index 3584 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC44 VAR(0x0F, 0x0044)	15:0	0x0000	ll_gamma_contrast_curve_29 (R/W)
	Gamma curve. This is the knee point value for index 3712 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC46 VAR(0x0F, 0x0046)	15:0	0x0000	ll_gamma_contrast_curve_30 (R/W)
	Gamma curve. This is the knee point value for index 3840 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC48 VAR(0x0F, 0x0048)	15:0	0x0000	ll_gamma_contrast_curve_31 (R/W)
	Gamma curve. This is the knee point value for index 3968 This value is unsigned. Changes take effect during Vertical Blanking.		

Table 46. LOW LIGHT VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xBC4A VAR(0x0F, 0x004A)	**15:0**	**0x0000**	**ll_gamma_contrast_curve_32 (R/W)**
	Gamma curve. This is the knee point value for index 4096 This value is unsigned. Changes take effect during Vertical Blanking.		
0xBC8E VAR(0x0F, 0x008E)	**15:0**	**0x0000**	**ll_average_luma_fade_to_black (RO)**
	When fade to black is enabled this internal variable contains the maximum average luma from the current statistics AE zones, otherwise it is set to cam_ll_bright_fade_to_black_luma. This value is unsigned. Updates during Vertical Blanking.		
0xBCB4 VAR(0x0F, 0x00B4)	**15:0**	**0x003F**	**ll_altm_damping_fast (R/W)**
	Damping value for the fast response This value is unsigned fixed−point with 6 fractional bits. Changes take effect during Vertical Blanking.		
0xBCB6 VAR(0x0F, 0x00B6)	**15:0**	**0x000F**	**ll_altm_damping_med (R/W)**
	Damping value for the medium response This value is unsigned fixed−point with 6 fractional bits. Changes take effect during Vertical Blanking.		
0xBCB8 VAR(0x0F, 0x00B8)	**15:0**	**0x0007**	**ll_altm_damping_slow (R/W)**
	Damping value for the slow response. Normally used also as default. This value is unsigned fixed−point with 6 fractional bits. Changes take effect during Vertical Blanking.		

Flicker Detect Variables Descriptions

Table 47. FLICKER DETECT VARIABLES DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC000 VAR(0x10, 0x0000)	**15:0**	**0x0000**	**flicker_detect_status (RO)**
	15:8	X	Reserved
	7	RO	Reserved
	6	X	Reserved
	5	RO	flicker_detect_fd_status_running Flicker Detection status: 0: Flicker Detection is idle. 1: Flicker Detection is active. This value is unsigned. Updates during Vertical Blanking.
	4	RO	flicker_detect_fd_status_flicker_change_detected Flicker detection status: 0: No flicker has been detected. 1: Flicker detected in the current scene. Note: This flag is automatically cleared after a Change−Config, Refresh, or Standby operation. This value is unsigned. Updates during Vertical Blanking.
	3	RO	flicker_detect_fd_status_sync_frame_rate Synchronized frame rate status: 0: Flicker Detection can run. 1: Flicker Detection cannot run because the current frame rate is in sync (or nearly) with the period of the flicker source to be detected. (For example, 60 frames−per−second and 60 Hz flicker source). This value is unsigned. Updates during Vertical Blanking.
	2:1	X	Reserved
	0	RO	Reserved
	Flicker Detection status. This value is unsigned. Updates during Vertical Blanking.		

CamControl Variable Descriptions

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC804 VAR(0x12, 0x0004)	15:0	0x0008	cam_sensor_cfg_y_addr_start (R/W)
	The first row of visible pixels to be read out (not counting any dark rows that may be read). Must be an even value. This value is unsigned. Changes take effect after a Change−Config command.		
0xC806 VAR(0x12, 0x0006)	15:0	0x0002	cam_sensor_cfg_x_addr_start (R/W)
	The first column of visible pixels to be read out (not counting any dark columns that may be read). Must be an even value. This value is unsigned. Changes take effect after a Change−Config command.		
0xC808 VAR(0x12, 0x0008)	15:0	0x03C7	cam_sensor_cfg_y_addr_end (R/W)
	The last row of visible pixels to be read out. Must be an odd value. This value is unsigned. Changes take effect after a Change−Config command.		
0xC80A VAR(0x12, 0x000A)	15:0	0x0501	cam_sensor_cfg_x_addr_end (R/W)
	The last column of visible pixels to be read out. Must be an odd value. This value is unsigned. Changes take effect after a Change−Config command.		
0xC80C VAR(0x12, 0x000C)	31:0	0x0337F980	cam_sensor_cfg_pixclk (R/W)
	The sensor's pixel clock speed in Hertz. This value is unsigned. Changes take effect after a Change−Config command.		
0xC810 VAR(0x12, 0x0010)	15:0	0x02BC	cam_sensor_cfg_fine_integ_time_min (R/W)
	Minimum fine integration time. This value is unsigned. Changes take effect after a Change−Config command.		
0xC812 VAR(0x12, 0x0012)	15:0	0x068C	cam_sensor_cfg_fine_integ_time_max (R/W)
	Maximum fine integration time. This value is unsigned. Changes take effect after a Change−Config command.		
0xC814 VAR(0x12, 0x0014)	15:0	0x0432	cam_sensor_cfg_frame_length_lines (R/W)
	The number of complete lines (rows) in the output frame. This includes visible lines and vertical blanking lines. This value is unsigned. Changes take effect after a Change−Config command.		
0xC816 VAR(0x12, 0x0016)	15:0	0x068C	cam_sensor_cfg_line_length_pck (R/W)
	The number of pixel clock periods in one line (row) time. This includes visible pixels and horizontal blanking. This value is unsigned. Changes take effect after a Change−Config command.		
0xC818 VAR(0x12, 0x0018)	15:0	0x0000	cam_sensor_cfg_fine_correction (R/W)
	Fine Correction (fine integration time). This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC830 VAR(0x12, 0x0030)	**31:0**	**0x000024A5**	**cam_sensor_cfg_tuning (R/W)**
	31:26	X	Reserved
	25:23	0x00000000	cam_sensor_cfg_tuning_hispi_delay_data1 Sensor HiSPi data lane 1 delay in 1/8th of symbol period. This value is unsigned. Changes take effect after a Change−Config command.
	22:20	0x00000000	cam_sensor_cfg_tuning_hispi_delay_data0 Sensor HiSPi data lane 0 delay in 1/8th of symbol period. This value is unsigned. Changes take effect after a Change−Config command.
	19:17	0x00000000	cam_sensor_cfg_tuning_hispi_delay_clock Sensor HiSPi clock lane delay in 1/8th of symbol period. This value is unsigned. Changes take effect after a Change−Config command.
	16	0x00000000	Reserved
	15:13	0x0001	Reserved
	12:10	0x0001	Reserved
	9:7	0x0001	Reserved
	6:4	0x02	Reserved
	3:1	0x02	Reserved
	0	0x01	Reserved
	Tuning for the current sensor. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC834 VAR(0x12, 0x0034)	**7:0**	**0x20**	**cam_sensor_cfg_cci_base_addr_0 (R/W)**
	CCI device address for the attached sensor. Used for sensor discovery. This value is unsigned. Changes take effect after a Change−Config command.		
0xC835 VAR(0x12, 0x0035)	**7:0**	**0x30**	**cam_sensor_cfg_cci_base_addr_1 (R/W)**
	Alternate CCI device address for the attached sensor. Used for sensor discovery. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC838 VAR(0x12, 0x0038)	**31:0**	**0x04020841**	**cam_sensor_control_external_pll (R/W)**
	31:29	X	Reserved
	28:23	0x00000008	cam_sensor_control_external_pll_p2 The Sensor PLL's VCO P2 output divider. See the data sheet for the attached sensor for the setting of this value. This value is unsigned. Changes take effect after a Change−Config command.
	22:17	0x00000001	cam_sensor_control_external_pll_p1 The Sensor PLL's VCO P1 output divider. See the data sheet for the attached sensor for the setting of this value. This value is unsigned. Changes take effect after a Change−Config command.
	16:10	0x00000002	cam_sensor_control_external_pll_n The Sensor PLL's prescale divider. The Sensor PLL's VCO divider. See the data sheet for the attached sensor for the setting of this value. This value is unsigned. Changes take effect after a Change−Config command.
	9:1	0x0020	cam_sensor_control_external_pll_m The Sensor PLL's VCO divider. See the data sheet for the attached sensor for the setting of this value. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	cam_sensor_control_external_pll_enable Sensor's phase lock loop enable. 0=disabled (bypassed), 1=enabled. The PLL dividers should only be changed when the PLL is disabled. This value is unsigned. Changes take effect after a Change−Config command.
	Sensor's PLL control variable. See individual bit descriptions for function. This value is unsigned. Changes take effect after a Change−Config command.		
0xC83C VAR(0x12, 0x003C)	**7:0**	**0x00**	**cam_sensor_control_base_address (RO)**
	This is the actual CCI device address for the attached sensor that was found during sensor discovery. This value is unsigned. Updates after a Change−Config command.		
0xC83D VAR(0x12, 0x003D)	**7:0**	**0x00**	**cam_sensor_control_revision_number (RO)**
	Revision number of the attached sensor. This is updated during sensor discovery and is not valid before then. This value is unsigned. Updates after a Change−Config command.		
0xC83E VAR(0x12, 0x003E)	**15:0**	**0x0000**	**cam_sensor_control_model_id (RO)**
	Model ID of the attached sensor. This is updated during sensor discovery and is not valid before then. This value is unsigned. Updates after a Change−Config command.		
0xC840 VAR(0x12, 0x0040)	**15:0**	**0x0000**	**cam_sensor_control_external_output_clk_div (R/W)**
	15:8	0x0000	cam_sensor_control_external_output_sys_clk_div The sensor's output system clock divider. See the data sheet for the attached sensor for the setting of this value. This value is unsigned. Changes take effect after a Change−Config command.
	7:0	0x00	cam_sensor_control_external_output_pix_clk_div The sensor's output pixel clock divider. See the data sheet for the attached sensor for the setting of this value. This value is unsigned. Changes take effect after a Change−Config command.
	Sensor's output clock controls. See individual bit descriptions for function. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC842 VAR(0x12, 0x0042)	**7:0**	**0x00**	**cam_sensor_control_request (R/W)**
	7:2	X	Reserved
	1	0x00	cam_sensor_control_wb_request When set, requests the Sensor Manager commit a new white balance. Auto−cleared when new white balance is applied. This value is unsigned. Changes take effect during Vertical Blanking.
	0	0x00	cam_sensor_control_exposure_request When set, requests the Sensor Manager commit a new exposure. Auto−cleared when new exposure is applied. This value is unsigned. Changes take effect during Vertical Blanking.
	Sensor exposure and white balance request bits from the host. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC843 VAR(0x12, 0x0043)	**7:0**	**0x00**	**cam_sensor_control_internal_request (RO)**
	7:2	X	Reserved
	1	RO	cam_sensor_control_wb_int_request When set, requests the Sensor Manager commit a new white balance. For internal use only. Auto−cleared when new white balance is applied. This value is unsigned. Updates during Vertical Blanking.
	0	RO	cam_sensor_control_exposure_int_request When set, requests the Sensor Manager commit a new exposure. For internal use only. Auto−cleared when new exposure is applied. This value is unsigned. Updates during Vertical Blanking.
	Exposure/WB request bits to the Sensor Manager (set internal). This value is unsigned. Updates during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC844 VAR(0x12, 0x0044)	**15:0**	**0x09C2**	**cam_sensor_control_operation_mode (R/W)**
	15:14	X	Reserved
	13	0x0000	cam_sensor_control_embedded_stats_enable Enable output of sensor statistics data embedded in the output video stream: 0: Disabled. 1: Enabled. Embedded sensor statistics data can only be enabled when operating in Bayer output modes. This value is unsigned. Changes take effect after a Change−Config command.
	12	0x0000	cam_sensor_control_embedded_regs_enable Enable output of sensor register data embedded in the output video stream: 0: Disabled. 1: Enabled. Embedded sensor register data can only be enabled when operating in Bayer output modes. This value is unsigned. Changes take effect after a Change−Config command.
	11	0x0001	Reserved
	10:6	0x0007	Reserved
	5:4	0x00	cam_sensor_control_output_data Controls the output data format from the sensor to the companion chip (0=12 bit parallel, 1=12 bit HiSpi, 2=14 bit HiSpi). This value is unsigned. Changes take effect after a Change−Config command.
	3	X	Reserved
	2:0	0x02	cam_sensor_control_exposure_mode Controls the exposure mode (0=SDR (standard DR), 1=HDR (ME), 2=HDR (DLO)). This value is unsigned. Changes take effect after a Change−Config command.
	Mode of operation for the sensor. This value is unsigned. Changes take effect after a Change−Config command.		
0xC846 VAR(0x12, 0x0046)	**15:0**	**0x0000**	**cam_sensor_control_read_mode (R/W)**
	15:2	X	Reserved
	1	0x00	cam_sensor_control_vert_flip_en 0: Readout is not flipped (mirrored) vertically. 1: Readout is flipped (mirrored) vertically. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x00	cam_sensor_control_horz_mirror_en 0: Readout is not mirrored horizontally. 1: Readout is mirrored horizontally. This value is unsigned. Changes take effect after a Change−Config command.
	Controls the sensor read−mode. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC848 VAR(0x12, 0x0048)	**15:0**	**0x000B**	**cam_hdr_mc_ctrl_mode (R/W)**
	15:4	X	Reserved
	3	0x01	cam_hdr_mc_ctrl_mc_enable_noise_filter Enable noise filtering for motion−compensation algorithm (0=disable, 1=enable). This value is unsigned. Changes take effect after a Change−Config command.
	2	0x00	Reserved
	1	0x01	cam_hdr_mc_ctrl_mc_enable_motion_correction_2d 2−D Motion detection/correction control (0=1−D, 1=2−D). This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	cam_hdr_mc_ctrl_mc_enable_motion_correction Motion Detection and Correction control (0=disabled, 1=enabled). This value is unsigned. Changes take effect after a Change−Config command.
	Mode bits for motion compensation algorithm. This value is unsigned. Changes take effect after a Change−Config command.		
0xC84A VAR(0x12, 0x004A)	**15:0**	**0x0BA0**	**cam_hdr_mc_ctrl_s1_threshold (R/W)**
	Separate S1 threshold (start of weighting function for smooth HDR pixel combination) for motion compensation. This value is unsigned. Changes take effect after a Change−Config command.		
0xC84C VAR(0x12, 0x004C)	**15:0**	**0x0FA0**	**cam_hdr_mc_ctrl_s2_threshold (R/W)**
	Threshold level for end point of weighting transfer function. Pixel values above this level are chosen from exposure 2 only. This value is unsigned. Changes take effect after a Change−Config command.		
0xC84E VAR(0x12, 0x004E)	**15:0**	**0x0800**	**cam_hdr_mc_ctrl_s12_range (R/W)**
	Range of code values for the weighting transfer function defined by S2−S1. This value is unsigned. Changes take effect after a Change−Config command.		
0xC850 VAR(0x12, 0x0050)	**15:0**	**0x0300**	**cam_hdr_mc_ctrl_diff_threshold (R/W)**
	Value specifying how much greater than P2−lin, P1 must be for motion to be detected (the nearer this value is to 0 the less robust to noise it will be). This value is unsigned. Changes take effect after a Change−Config command.		
0xC854 VAR(0x12, 0x0054)	**15:0**	**0x0001**	**cam_hdr_dlo_ctrl_mode (R/W)**
	15:2	X	Reserved
	1	0x00	cam_hdr_dlo_ctrl_dlo_enable_filter_quad Enable quadratic weighting for DLO noise filter (0=linear weighting, 1=quadratic weighting). This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	cam_hdr_dlo_ctrl_dlo_enable_noise_filter Enable noise filtering in the digital lateral overflow pixel combination (0=disabled, 1=enabled). This value is unsigned. Changes take effect after a Change−Config command.
	Mode bits for digital lateral overflow algorithm. This value is unsigned. Changes take effect after a Change−Config command.		
0xC856 VAR(0x12, 0x0056)	**15:0**	**0x0BB8**	**cam_hdr_dlo_ctrl_t1_barrier (R/W)**
	Barrier for clipping T1 data in the digital lateral overflow combination method. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC858 VAR(0x12, 0x0058)	15:0	0x0DAC	cam_hdr_dlo_ctrl_t2_barrier (R/W)
	Barrier for clipping T2 data in the digital lateral overflow combination method. This value is unsigned. Changes take effect after a Change−Config command.		
0xC85A VAR(0x12, 0x005A)	15:0	0x0FA0	cam_hdr_dlo_ctrl_t3_barrier (R/W)
	Barrier for clipping T3 data in the digital lateral overflow combination method. This value is unsigned. Changes take effect after a Change−Config command.		
0xC85C VAR(0x12, 0x005C)	15:0	0x0100	cam_hdr_dlo_ctrl_noise_disable_threshold (R/W)
	For the digital lateral overflow method, if either T1 data, T2 data or T3 data is greater than this threshold, noise filtering is turned off. Evaluated on a single pixel. This value is unsigned. Changes take effect after a Change−Config command.		
0xC85E VAR(0x12, 0x005E)	15:0	0x0020	cam_hdr_dlo_ctrl_noise_s2_threshold (R/W)
	Threshold level for end point of noise filter weighting transfer function for digital lateral overflow. This value is unsigned. Changes take effect after a Change−Config command.		
0xC860 VAR(0x12, 0x0060)	15:0	0x0005	cam_hdr_dlo_ctrl_noise_s12_range (R/W)
	Range of code values for the noise filter weighting transfer function for digital lateral overflow defined by s2_dlo − s1_dlo. This value is unsigned. Changes take effect after a Change−Config command.		
0xC864 VAR(0x12, 0x0064)	15:0	0x0001	cam_exp_ctrl_coarse_integration_time (R/W)
	Coarse integration time specified in lines. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC866 VAR(0x12, 0x0066)	15:0	0x0000	cam_exp_ctrl_fine_integration_time (R/W)
	Fine integration time specified in pixel clocks. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC868 VAR(0x12, 0x0068)	15:0	0x0020	cam_exp_ctrl_analog_red_gain (R/W)
	Analog gain for the red channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC86A VAR(0x12, 0x006A)	15:0	0x0020	cam_exp_ctrl_analog_green1_gain (R/W)
	Analog gain for the green1 channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC86C VAR(0x12, 0x006C)	15:0	0x0020	cam_exp_ctrl_analog_green2_gain (R/W)
	Analog gain for the green2 channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC86E VAR(0x12, 0x006E)	15:0	0x0020	cam_exp_ctrl_analog_blue_gain (R/W)
	Analog gain for the blue channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC870 VAR(0x12, 0x0070)	15:0	0x0000	cam_exp_ctrl_frame_length_lines (R/W)
	Number of lines within the frame. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC872 VAR(0x12, 0x0072)	15:0	0x0000	cam_exp_ctrl_line_length_pck (R/W)
	Number of pixel clocks within a line. This value is read−write in host−controlled exposure mode, read−only in all other modes. Changing this value generates a bad frame in the sensor. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC874 VAR(0x12, 0x0074)	7:0	0x00	cam_exp_ctrl_column_gain (R/W)
	Column gain selection for all channels. This value is read−write in host−controlled exposure mode, read−only in all other modes. 0: 1x gain. 1: 2x gain. 2: 4x gain. 3: 8x gain. Note: These values are sensor specific. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC875 VAR(0x12, 0x0075)	7:0	0x00	cam_exp_ctrl_dcg_gain (R/W)
	Dual−conversion gain for all channels. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC876 VAR(0x12, 0x0076)	15:0	0x0080	cam_exp_ctrl_dgain_red (R/W)
	Sensor digital gain for the red channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC878 VAR(0x12, 0x0078)	15:0	0x0080	cam_exp_ctrl_dgain_green1 (R/W)
	Sensor digital gain for the green1 channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC87A VAR(0x12, 0x007A)	15:0	0x0080	cam_exp_ctrl_dgain_green2 (R/W)
	Sensor digital gain for the green2 channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC87C VAR(0x12, 0x007C)	15:0	0x0080	cam_exp_ctrl_dgain_blue (R/W)
	Sensor digital gain for the blue channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC87E VAR(0x12, 0x007E)	15:0	0x0080	cam_exp_ctrl_cpipe_dgain_red (R/W)
	Cpipe gain for the red channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC880 VAR(0x12, 0x0080)	15:0	0x0080	cam_exp_ctrl_cpipe_dgain_green1 (R/W)
	Cpipe gain for the green1 channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC882 VAR(0x12, 0x0082)	15:0	0x0080	cam_exp_ctrl_cpipe_dgain_green2 (R/W)
	Cpipe gain for the green2 channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC884 VAR(0x12, 0x0084)	15:0	0x0080	cam_exp_ctrl_cpipe_dgain_blue (R/W)
	Cpipe gain for the blue channel. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC886 VAR(0x12, 0x0086)	15:0	0x0080	cam_exp_ctrl_cpipe_dgain_second (R/W)
	Cpipe secondary gain for all channels. This value is read−write in host−controlled exposure mode, read−only in all other modes. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC888 VAR(0x12, 0x0088)	15:0	0x00C8	cam_cpipe_control_first_black_level (R/W)
	Applied first blacklevel subtraction, should match sensor data pedestal, host configured. This value is unsigned. Changes take effect after a Change−Config command.		
0xC88A VAR(0x12, 0x008A)	15:0	0x0000	cam_cpipe_control_second_black_level (RO)
	Second Black Level control − this value is calculated based on the scene. This value is then subtracted from each pixel value to enhance contrast. This can be RW if the blacklevel algorithm is disabled. This value is unsigned. Updates during Vertical Blanking.		
0xC88C VAR(0x12, 0x008C)	7:0	0x00	cam_mode_select (R/W)
	Selects the camera operation mode: 0: Normal. 1: Lens Calibration. 2: Test Pattern Generator. 3: Synchronized. 4: Raw Bayer. 5: DCNR Bayer. 7: ALTM Bayer−12. 8: ALTM Bayer−10. All other values are reserved. In the Synchronized mode the AP0100 triggers the sensor to start streaming, in response to the TRIGGER input to the AP0100. The sensor window in all modes is controlled by the CAM_SENSOR_CFG... variables. This value is unsigned. Changes take effect after a Change−Config command.		
0xC88D VAR(0x12, 0x008D)	7:0	0x00	cam_mode_sync_type (R/W)
	Selects type of synchronization: 0: Trigger (Standard) 1: Trigger (Deterministic) 2: Slave (Standard) 3: Slave (Shutter−Sync) All other values are reserved. This value is unsigned. Changes take effect after a Change−Config command.		
0xC88E VAR(0x12, 0x008E)	7:0	0x00	cam_mode_sync_trigger_mode (R/W)
	Selects type of trigger when synchronization is set to one of the trigger types. 0: One−Shot: trigger will commence streaming, sensor will stop streaming after read−out completes unless retriggered. 1: Continuous: trigger will commence streaming, sensor will then continue streaming. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC88F VAR(0x12, 0x008F)	**7:0**	**0x02**	**cam_mode_test_pattern_select (R/W)**
	Select the test pattern (in Test Pattern Generator mode): 1: Solid color. 4: 100% color bars. 5: Pseudo−random. 8: Fade−to−gray color bars. 9: Linear ramp. 20: NTSC (EIA full field 7 color bars). 21: NTSC (EIA full field 8 color bars). 22: NTSC (SMPTE EG 1−1990). 23: NTSC (EIA full field 8 color bars 100 IRE). 30: PAL (EBU full field 7 color bars). 31: PAL (EBU full field 8 color bars). NTSC test patterns can only be selected if the device is operating in interlaced NTSC mode. PAL test patterns can only be selected if the device is operating in interlaced PAL mode. All other test patterns can only be selected if the device is operating in progressive−scan mode. This value is unsigned. Changes take effect after a Change−Config command.		
0xC890 VAR(0x12, 0x0090)	**31:0**	**0x000FFFFF**	**cam_mode_test_pattern_red (R/W)**
	Variables cam_mode_test_pattern_red, cam_mode_test_pattern_green, and cam_mode_test_pattern_blue select the color for the solid color test pattern. This is a 20 bit value when the part is in an HDR mode (0−19) and bits 20 and above are masked off before use. In non−HDR mode this is limited to a 12 bit value and bits 12 and above are masked off before use. This value is unsigned. Changes take effect after a Change−Config command.		
0xC894 VAR(0x12, 0x0094)	**31:0**	**0x000FFFFF**	**cam_mode_test_pattern_green (R/W)**
	Variables cam_mode_test_pattern_red, cam_mode_test_pattern_green, and cam_mode_test_pattern_blue select the color for the solid color test pattern. This is a 20 bit value when the part is in an HDR mode (0−19) and bits 20 and above are masked off before use. In non−HDR mode this is limited to a 12 bit value and bits 12 and above are masked off before use. This value is unsigned. Changes take effect after a Change−Config command.		
0xC898 VAR(0x12, 0x0098)	**31:0**	**0x000FFFFF**	**cam_mode_test_pattern_blue (R/W)**
	Variables cam_mode_test_pattern_red, cam_mode_test_pattern_green, and cam_mode_test_pattern_blue select the color for the solid color test pattern. This is a 20 bit value when the part is in an HDR mode (0−19) and bits 20 and above are masked off before use. In non−HDR mode this is limited to a 12 bit value and bits 12 and above are masked off before use. This value is unsigned. Changes take effect after a Change−Config command.		
0xC89C VAR(0x12, 0x009C)	**15:0**	**0x0000**	**cam_crop_window_xoffset (R/W)**
	The horizontal offset in pixels of the crop window relative to the left edge of sensor's Field of View (FOV). This can be used to pan the crop window within the FOV window. This value is unsigned. Changes take effect after a Refresh command.		
0xC89E VAR(0x12, 0x009E)	**15:0**	**0x0000**	**cam_crop_window_yoffset (R/W)**
	The vertical offset in lines of the crop window relative to the top edge of the sensor's Field of View (FOV) window. This can be used to pan the crop window within the FOV window. This value is unsigned. Changes take effect after a Refresh command.		
0xC8A0 VAR(0x12, 0x00A0)	**15:0**	**0x0500**	**cam_crop_window_width (R/W)**
	The horizontal width of the crop window. This selects the number of columns from the sensor that will be used as input into the Scaler. This value is unsigned. Changes take effect after a Refresh command.		
0xC8A2 VAR(0x12, 0x00A2)	**15:0**	**0x03C0**	**cam_crop_window_height (R/W)**
	The vertical height in lines of the crop window. This selects the number of rows from the sensor that will be used as input into the Scaler. This value is unsigned. Changes take effect after a Refresh command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC8A4 VAR(0x12, 0x00A4)	**15:0**	**0x0011**	**cam_frame_scan_control (R/W)**
	15:5	X	Reserved
	4:3	0x02	Reserved
	2:1	0x00	cam_frame_scan_interlaced_mode Interlaced−scan control: 0: NTSC. 1: PAL. 2: Reserved. 3: Reserved. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	cam_frame_scan_mode Scanning mode control: 0: Interlaced−scan. 1: Progressive−scan. This value is unsigned. Changes take effect after a Change−Config command.
	Frame scan control This value is unsigned. Changes take effect after a Change−Config command.		
0xC8A8 VAR(0x12, 0x00A8)	**7:0**	**0x00**	**cam_fov_calib_x_offset (R/W)**
	Horizontal calibration offset for the sensor array. This shifts the center of Field of View (FOV) window relative to the center of the sensor. This is used to compensate for manufacturing tolerances when the sensor is mounted in a module, so that the image center is the same for all modules. A value of 0 centers the FOV horizontally on the center of the sensor. The limits for calib_x_offset are (calib_x_offset + CAM_SENSOR_CFG_X_ADDR_START) must be 0 or larger (not negative), and (calib_x_offset + CAM_SENSOR_CFG_X_ADDR_END) must be less than the maximum width of the sensor. When using the flip and mirror feature of the sensor, then the range for calib_x_offset might need to be increased to correct for the sensor's internal starting color adjustment. This value is signed 2's complement. Changes take effect after a Change−Config command.		
0xC8A9 VAR(0x12, 0x00A9)	**7:0**	**0x00**	**cam_fov_calib_y_offset (R/W)**
	Vertical calibration offset for the sensor array. This shifts the center of Field of View (FOV) window relative to the center of the sensor. This is used to compensate for manufacturing tolerances when the sensor is mounted in a module, so that the image center is the same for all modules. A value of 0 centers the FOV vertically on the center of the sensor. The limits for calib_x_offset are (calib_y_offset + CAM_SENSOR_CFG_Y_ADDR_START) must be 0 or larger (not negative), and (calib_y_offset + CAM_SENSOR_CFG_Y_ADDR_END) must be less than the maximum height of the sensor. When using the flip and mirror feature of the sensor, then the range for calib_y_offset might need to be increased to correct for the sensor's internal starting color adjustment. This value is signed 2's complement. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC8BC VAR(0x12, 0x00BC)	**7:0**	**0x00**	**cam_aet_aemode (R/W)**
	7	0x00	cam_aet_mode_max_int_time Enable the 'maximise integration time' mode. The integration time is fixed to the maximum possible for the given frame rate. Note this can be used in HDR to get the faster frame rates as the vblanking can be decreased. This value is unsigned. Changes take effect after a Change−Config command.
	6:4	0x00	cam_aet_mode_exposure Controls the Exposure operation mode: 0: Auto Exposure 1: Triggered Auto Exposure 2: Manual Exposure 3: Host−Controlled All other values are reserved. This value is unsigned. Changes take effect after a Refresh command.
	3:2	X	Reserved
	1	0x00	cam_aet_discrete_framerate Controls variable frame−rate operation: 0: Continuously−variable: the frame rate varies in steps of 1 flicker period 1: Discrete: the frame rate will vary by discrete steps. The discrete frame rates are determined by the cam_aet_frame_rate_0 through cam_aet_frame_rate_2 variables. Note this bit is only supported in SDR mode. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x00	cam_aet_mode_indoor Enable 'indoor' mode: 0: disabled 1: enabled: limit AE to minimum 1 flicker period of exposure. This value is unsigned. Changes take effect after a Change−Config command.
	Execution modes for AE Track. This value is unsigned. Changes take effect after a Change−Config command.		
0xC8BE VAR(0x12, 0x00BE)	**15:0**	**0x001E**	**cam_aet_black_clipping_target (R/W)**
	Black level control: sets the target percentage of 'dark' pixels within the luma histogram (1024 = 100%). The firmware adjusts the luma histogram by subtracting the calculated black level from each pixel, then equalizing the histogram. The blacklevel algorithm calculates the amount of subtraction (cam_cpipe_control_second_black_level) to be applied so that the 'dark' percentage of the luma histogram matches the target. The maximum amount of black level subtraction that can be applied is limited by blacklevel_max_black_level. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC8C0 VAR(0x12, 0x00C0)	**15:0**	**0x0500**	**cam_aet_exposure_time_ms (R/W)**
	Manual exposure (integration) time in milliseconds, for 'Manual Exposure' mode. This variable is only processed in response to the 'host' exposure request bit (cam_sensor_control_exposure_request) being set. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC8C2 VAR(0x12, 0x00C2)	**15:0**	**0x0080**	**cam_aet_exposure_gain (R/W)**
	Manual exposure (gain), for 'Manual Exposure' mode. This variable is only processed in response to the 'host' exposure request bit (cam_sensor_control_exposure_request) being set. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC8C6 VAR(0x12, 0x00C6)	15:0	0x0080	cam_aet_ae_min_virt_dgain (R/W)
	This is the minimum value for the second digital gain that AE Track is permitted to use. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC8C8 VAR(0x12, 0x00C8)	15:0	0x0280	cam_aet_ae_max_virt_dgain (R/W)
	This the maximum value for the second digital gain that AE Track is permitted to use. The default maximum value is set to allow AE Track to use small amounts of digital gain to supplement system gain values. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC8CA VAR(0x12, 0x00CA)	15:0	0x0020	cam_aet_ae_min_virt_again (R/W)
	This is the minimum value for the sensor analog gain that AE Track is permitted to use. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC8CC VAR(0x12, 0x00CC)	15:0	0x0020	cam_aet_ae_max_virt_again (R/W)
	This the maximum value for the sensor analog gain that AE Track is permitted to use. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC8CE VAR(0x12, 0x00CE)	15:0	0x0020	cam_aet_ae_virt_gain_th_eg (R/W)
	Threshold for Extended Gain. Note: This value should be set to the minimum gain (cam_aet_ae_min_virt_again * cam_aet_ae_min_virt_dgain). This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC8D1 VAR(0x12, 0x00D1)	7:0	0x3C	cam_aet_flicker_freq_hz (R/W)
	The desired flicker avoidance frequency in Hertz (50Hz or 60Hz). In interlaced−scan modes, this variable is initialized automatically from ntsc_aet_flicker_frequency_hz or pal_aet_flicker_frequency_hz as appropriate. This value is unsigned. Changes take effect after a Change−Config command.		
0xC8D2 VAR(0x12, 0x00D2)	15:0	0x1E00	cam_aet_max_frame_rate (RO)
	The maximum configured frame rate in Hertz (unity = 256). Note this is the maximum frame−rate as determined by the current sensor configuration. This value is unsigned fixed−point with 8 fractional bits. Updates after a Change−Config command.		
0xC8D4 VAR(0x12, 0x00D4)	15:0	0x0000	cam_aet_frame_rate_0 (R/W)
	First discrete mode frame rate in Hertz. Must be less than cam_aet_max_frame_rate and greater than cam_aet_frame_rate_1. Variable frame rate is not supported in Interlaced modes and HDR exposure modes. This value is unsigned fixed−point with 8 fractional bits. Changes take effect after a Change−Config command.		
0xC8D6 VAR(0x12, 0x00D6)	15:0	0x0000	cam_aet_frame_rate_1 (R/W)
	Second discrete mode frame rate in Hertz. Must be less than cam_aet_frame_rate_0 and greater than cam_aet_frame_rate 2. Variable frame rate is not supported in Interlaced modes and HDR exposure modes. This value is unsigned fixed−point with 8 fractional bits. Changes take effect after a Change−Config command.		
0xC8D8 VAR(0x12, 0x00D8)	15:0	0x0000	cam_aet_frame_rate_2 (R/W)
	Third discrete mode frame rate in Hertz. Must be less than cam_aet_frame_rate_1. Variable frame rate is not supported in Interlaced modes and HDR exposure modes. This value is unsigned fixed−point with 8 fractional bits. Changes take effect after a Change−Config command.		
0xC8DA VAR(0x12, 0x00DA)	15:0	0x0100	cam_aet_target_gain (R/W)
	Sets the target analog gain. This value is used by AE Track to determine the maximum gain before starting to reduce the frame rate (in variable frame−rate modes). This is subject to the limitation that the minimum value has to be at least twice the minimum system gain − i.e. 2 x (cam_aet_ae_min_virt_again x cam_aet_ae_min_virt_dgain). This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
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Register Dec(Hex)	Bits	Default	Name
0xC8DC VAR(0x12, 0x00DC)	15:0	0x009C	cam_awb_ccm_l_0 (R/W)
	Red−rich CCM value for column 0 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8DE VAR(0x12, 0x00DE)	15:0	0x002E	cam_awb_ccm_l_1 (R/W)
	Red−rich CCM value for column 1 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8E0 VAR(0x12, 0x00E0)	15:0	0x0035	cam_awb_ccm_l_2 (R/W)
	Red−rich CCM value for column 2 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8E2 VAR(0x12, 0x00E2)	15:0	0xFFA8	cam_awb_ccm_l_3 (R/W)
	Red−rich CCM value for column 0 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8E4 VAR(0x12, 0x00E4)	15:0	0x0117	cam_awb_ccm_l_4 (R/W)
	Red−rich CCM value for column 1 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8E6 VAR(0x12, 0x00E6)	15:0	0x0041	cam_awb_ccm_l_5 (R/W)
	Red−rich CCM value for column 2 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8E8 VAR(0x12, 0x00E8)	15:0	0xFFA2	cam_awb_ccm_l_6 (R/W)
	Red−rich CCM value for column 0 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8EA VAR(0x12, 0x00EA)	15:0	0x0004	cam_awb_ccm_l_7 (R/W)
	Red−rich CCM value for column 1 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8EC VAR(0x12, 0x00EC)	15:0	0x015A	cam_awb_ccm_l_8 (R/W)
	Red−rich CCM value for column 2 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8EE VAR(0x12, 0x00EE)	15:0	0x00C5	cam_awb_ccm_m_0 (R/W)
	Intermediate CCM value for column 0 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8F0 VAR(0x12, 0x00F0)	15:0	0x0001	cam_awb_ccm_m_1 (R/W)
	Intermediate CCM value for column 1 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8F2 VAR(0x12, 0x00F2)	15:0	0x003A	cam_awb_ccm_m_2 (R/W)
	Intermediate CCM value for column 2 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8F4 VAR(0x12, 0x00F4)	15:0	0xFFEA	cam_awb_ccm_m_3 (R/W)
	Intermediate CCM value for column 0 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC8F6 VAR(0x12, 0x00F6)	15:0	0x00E7	cam_awb_ccm_m_4 (R/W)
	Intermediate CCM value for column 1 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8F8 VAR(0x12, 0x00F8)	15:0	0x002F	cam_awb_ccm_m_5 (R/W)
	Intermediate CCM value for column 2 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8FA VAR(0x12, 0x00FA)	15:0	0x0009	cam_awb_ccm_m_6 (R/W)
	Intermediate CCM value for column 0 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8FC VAR(0x12, 0x00FC)	15:0	0xFFF7	cam_awb_ccm_m_7 (R/W)
	Intermediate CCM value for column 1 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC8FE VAR(0x12, 0x00FE)	15:0	0x0100	cam_awb_ccm_m_8 (R/W)
	Intermediate CCM value for column 2 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC900 VAR(0x12, 0x0100)	15:0	0x00A4	cam_awb_ccm_r_0 (R/W)
	Blue−rich CCM value for column 0 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC902 VAR(0x12, 0x0102)	15:0	0x004B	cam_awb_ccm_r_1 (R/W)
	Blue−rich CCM value for column 1 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC904 VAR(0x12, 0x0104)	15:0	0x0011	cam_awb_ccm_r_2 (R/W)
	Blue−rich CCM value for column 2 and row 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC906 VAR(0x12, 0x0106)	15:0	0xFFE8	cam_awb_ccm_r_3 (R/W)
	Blue−rich CCM value for column 0 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC908 VAR(0x12, 0x0108)	15:0	0x00E4	cam_awb_ccm_r_4 (R/W)
	Blue−rich CCM value for column 1 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC90A VAR(0x12, 0x010A)	15:0	0x0034	cam_awb_ccm_r_5 (R/W)
	Blue−rich CCM value for column 2 and row 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC90C VAR(0x12, 0x010C)	15:0	0x000A	cam_awb_ccm_r_6 (R/W)
	Blue−rich CCM value for column 0 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC90E VAR(0x12, 0x010E)	15:0	0x001F	cam_awb_ccm_r_7 (R/W)
	Blue−rich CCM value for column 1 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC910 VAR(0x12, 0x0110)	15:0	0x00D8	cam_awb_ccm_r_8 (R/W)
	Blue−rich CCM value for column 2 and row 2. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC912 VAR(0x12, 0x0112)	15:0	0x005B	cam_awb_ccm_l_rg_gain (R/W)
	Red/Green ratio for Left Matrix. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC914 VAR(0x12, 0x0114)	15:0	0x0140	cam_awb_ccm_l_bg_gain (R/W)
	Blue/Green ratio for Left Matrix. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC916 VAR(0x12, 0x0116)	15:0	0x009E	cam_awb_ccm_m_rg_gain (R/W)
	Red/Green ratio for Intermediate Matrix. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC918 VAR(0x12, 0x0118)	15:0	0x0116	cam_awb_ccm_m_bg_gain (R/W)
	Blue/Green ratio for Intermediate Matrix. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC91A VAR(0x12, 0x011A)	15:0	0x008B	cam_awb_ccm_r_rg_gain (R/W)
	Red/Green ratio for Right Matrix. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC91C VAR(0x12, 0x011C)	15:0	0x00AF	cam_awb_ccm_r_bg_gain (R/W)
	Blue/Green ratio for Right Matrix. This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC91E VAR(0x12, 0x011E)	15:0	0x09C4	cam_awb_ccm_l_ctemp (R/W)
	Color temperature for the Left Matrix (in kelvin). This value is unsigned. Changes take effect during Vertical Blanking.		
0xC920 VAR(0x12, 0x0120)	15:0	0x0D67	cam_awb_ccm_m_ctemp (R/W)
	Color temperature for Intermediate Matrix (in kelvin). This value is unsigned. Changes take effect during Vertical Blanking.		
0xC922 VAR(0x12, 0x0122)	15:0	0x1964	cam_awb_ccm_r_ctemp (R/W)
	Color temperature for the Right Matrix (in kelvin). This value is unsigned. Changes take effect during Vertical Blanking.		
0xC924 VAR(0x12, 0x0124)	15:0	0x0A8C	cam_awb_color_temperature_min (R/W)
	Minimum color temperature (degrees kelvin) allowed for AWB. This value should be greater than or equal to cam_awb_ccm_l_ctemp. This constrains the range of AWB solutions. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC926 VAR(0x12, 0x0126)	15:0	0x1964	cam_awb_color_temperature_max (R/W)
	Maximum color temperature (degrees kelvin) allowed for AWB. This value should be less than or equal to cam_awb_ccm_r_ctemp. This constrains the range of AWB solutions. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC928 VAR(0x12, 0x0128)	**15:0**	**0x1964**	**cam_awb_color_temperature (R/W)**
	Current matrix color temperature (degrees kelvin). This variable is read−write in 'Manual' white−balance mode, read−only is all others. In manual mode, this variable sets the color temperature; the gain ratios are then adjusted accordingly. This value is constrained between cam_awb_ccm_l_ctemp and cam_awb_ccm_r_ctemp. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC92A VAR(0x12, 0x012A)	**15:0**	**0x0024**	**cam_awb_x_shift (R/W)**
	Shift parameter in horizontal direction in probability table, applied between rotation and scaling. This value is signed 2's complement. Changes take effect after a Refresh command.		
0xC92C VAR(0x12, 0x012C)	**15:0**	**0x0020**	**cam_awb_y_shift (R/W)**
	Shift parameter in vertical direction in probability table, applied between rotation and scaling. This value is signed 2's complement. Changes take effect after a Refresh command.		
0xC92E VAR(0x12, 0x012E)	**15:0**	**0x009C**	**cam_awb_recip_x_scale (R/W)**
	Reciprocal of scale factor times 512 to be applied to x index. This value is unsigned fixed−point with 9 fractional bits. Changes take effect after a Refresh command.		
0xC930 VAR(0x12, 0x0130)	**15:0**	**0x0044**	**cam_awb_recip_y_scale (R/W)**
	Reciprocal of scale factor times 512 to be applied to y index. This value is unsigned fixed−point with 9 fractional bits. Changes take effect after a Refresh command.		
0xC932 VAR(0x12, 0x0132)	**15:0**	**0x0007**	**cam_awb_rot_center_x (R/W)**
	Center of rotation of weight map, x. This value is signed 2's complement. Changes take effect after a Refresh command.		
0xC934 VAR(0x12, 0x0134)	**15:0**	**0xFFDF**	**cam_awb_rot_center_y (R/W)**
	Center of rotation of weight map, y. This value is signed 2's complement. Changes take effect after a Refresh command.		
0xC936 VAR(0x12, 0x0136)	**7:0**	**0x3F**	**cam_awb_rot_sin (R/W)**
	64*sin(theta), where theta is the weight map rotation angle. This value is signed 2's complement fixed−point with 6 fractional bits. Changes take effect after a Refresh command.		
0xC937 VAR(0x12, 0x0137)	**7:0**	**0x0A**	**cam_awb_rot_cos (R/W)**
	64*cos(theta), where theta is the weight map rotation angle. This value is signed 2's complement fixed−point with 6 fractional bits. Changes take effect after a Refresh command.		
0xC938 VAR(0x12, 0x0138)	**15:0**	**0x1111**	**cam_awb_weight_table_0 (R/W)**
	AWB weight table word 0. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC93A VAR(0x12, 0x013A)	**15:0**	**0x1111**	**cam_awb_weight_table_1 (R/W)**
	AWB weight table word 1. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC93C VAR(0x12, 0x013C)	**15:0**	**0x2222**	**cam_awb_weight_table_2 (R/W)**
	AWB weight table word 2. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
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Register Dec(Hex)	Bits	Default	Name
0xC93E VAR(0x12, 0x013E)	15:0	0x1111	cam_awb_weight_table_3 (R/W)
	AWB weight table word 3. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC940 VAR(0x12, 0x0140)	15:0	0x1222	cam_awb_weight_table_4 (R/W)
	AWB weight table word 4. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC942 VAR(0x12, 0x0142)	15:0	0x2223	cam_awb_weight_table_5 (R/W)
	AWB weight table word 5. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC944 VAR(0x12, 0x0144)	15:0	0x4555	cam_awb_weight_table_6 (R/W)
	AWB weight table word 6. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC946 VAR(0x12, 0x0146)	15:0	0x2221	cam_awb_weight_table_7 (R/W)
	AWB weight table word 7. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC948 VAR(0x12, 0x0148)	15:0	0x2466	cam_awb_weight_table_8 (R/W)
	AWB weight table word 8. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC94A VAR(0x12, 0x014A)	15:0	0x6654	cam_awb_weight_table_9 (R/W)
	AWB weight table word 9. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC94C VAR(0x12, 0x014C)	15:0	0x3234	cam_awb_weight_table_10 (R/W)
	AWB weight table word 10. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC94E VAR(0x12, 0x014E)	15:0	0x3452	cam_awb_weight_table_11 (R/W)
	AWB weight table word 11. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC950 VAR(0x12, 0x0150)	15:0	0x2577	cam_awb_weight_table_12 (R/W)
	AWB weight table word 12. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC952 VAR(0x12, 0x0152)	15:0	0x6764	cam_awb_weight_table_13 (R/W)
	AWB weight table word 13. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC954 VAR(0x12, 0x0154)	15:0	0x2212	cam_awb_weight_table_14 (R/W)
	AWB weight table word 14. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC956 VAR(0x12, 0x0156)	15:0	0x2552	cam_awb_weight_table_15 (R/W)
	AWB weight table word 15. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
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Register Dec(Hex)	Bits	Default	Name
0xC958 VAR(0x12, 0x0158)	15:0	0x1354	cam_awb_weight_table_16 (R/W)
	AWB weight table word 16. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC95A VAR(0x12, 0x015A)	15:0	0x4565	cam_awb_weight_table_17 (R/W)
	AWB weight table word 17. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC95C VAR(0x12, 0x015C)	15:0	0x4422	cam_awb_weight_table_18 (R/W)
	AWB weight table word 18. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC95E VAR(0x12, 0x015E)	15:0	0x2331	cam_awb_weight_table_19 (R/W)
	AWB weight table word 19. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC960 VAR(0x12, 0x0160)	15:0	0x1122	cam_awb_weight_table_20 (R/W)
	AWB weight table word 20. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC962 VAR(0x12, 0x0162)	15:0	0x1234	cam_awb_weight_table_21 (R/W)
	AWB weight table word 21. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC964 VAR(0x12, 0x0164)	15:0	0x3335	cam_awb_weight_table_22 (R/W)
	AWB weight table word 22. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC966 VAR(0x12, 0x0166)	15:0	0x6652	cam_awb_weight_table_23 (R/W)
	AWB weight table word 23. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC968 VAR(0x12, 0x0168)	15:0	0x1111	cam_awb_weight_table_24 (R/W)
	AWB weight table word 24. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC96A VAR(0x12, 0x016A)	15:0	0x1112	cam_awb_weight_table_25 (R/W)
	AWB weight table word 25. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC96C VAR(0x12, 0x016C)	15:0	0x1224	cam_awb_weight_table_26 (R/W)
	AWB weight table word 26. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC96E VAR(0x12, 0x016E)	15:0	0x5652	cam_awb_weight_table_27 (R/W)
	AWB weight table word 27. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC970 VAR(0x12, 0x0170)	15:0	0x1111	cam_awb_weight_table_28 (R/W)
	AWB weight table word 28. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
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Register Dec(Hex)	Bits	Default	Name
0xC972 VAR(0x12, 0x0172)	**15:0**	**0x1111**	**cam_awb_weight_table_29 (R/W)**
	AWB weight table word 29. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC974 VAR(0x12, 0x0174)	**15:0**	**0x1112**	**cam_awb_weight_table_30 (R/W)**
	AWB weight table word 30. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC976 VAR(0x12, 0x0176)	**15:0**	**0x2332**	**cam_awb_weight_table_31 (R/W)**
	AWB weight table word 31. This is derived from the output of the Sensor Tune tool. This value is unsigned. Changes take effect after a Refresh command.		
0xC979 VAR(0x12, 0x0179)	**7:0**	**0x10**	**cam_awb_luma_thresh_low (R/W)**
	Lower luma threshold for pixels used in AWB. This value is unsigned. Changes take effect after a Refresh command.		
0xC97A VAR(0x12, 0x017A)	**7:0**	**0xF0**	**cam_awb_luma_thresh_high (R/W)**
	Upper luma threshold for pixels used in AWB. This value is unsigned. Changes take effect after a Refresh command.		
0xC97B VAR(0x12, 0x017B)	**7:0**	**0x01**	**cam_awb_weight_thresh_low (R/W)**
	Lower pixel weight threshold. This value is unsigned. Changes take effect after a Refresh command.		
0xC97D VAR(0x12, 0x017D)	**7:0**	**0x00**	**cam_awb_mode (R/W)**
	7:5	X	Reserved
	4	0x00	Reserved
	3	0x00	cam_awb_mode_ir_filter_enable Dual−band infrared AWB mode control: 0: Disabled. 1: Enabled. Note: This mode is available to allow use of lenses with a dual−band infrared cut filter. This value is unsigned. Changes take effect during Vertical Blanking.
	2:0	0x00	cam_awb_mode_control Controls the White−Balance operation mode: 0: Auto−white−balance. 1: Triggered auto−white−balance. 2: Manual white−balance (via cam_awb_color_temperature). 3: Host−controlled. This value is unsigned. Changes take effect after a Change−Config command.
	Execution modes for AWB. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC980 VAR(0x12, 0x0180)	**15:0**	**0x0DAC**	**cam_awb_tints_ctemp_threshold (R/W)**
	Color temperature threshold in which to use the tint offsets. Color tints can be applied to the current CCM. There are two sets of tints: − cam_awb_k_r_l, cam_awb_k_g_l,cam_awb_k_b_l: red−rich illumination. − cam_awb_k_r_r, cam_awb_k_g_r, cam_awb_k_b_r: blue−rich illumination. Note: The tints applied are interpolated using cam_awb_color_temperature. This interpolation is performed when cam_awb_color_temperature is between cam_awb_ccm_l_ctemp and cam_awb_tints_ctemp_threshold. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC982 VAR(0x12, 0x0182)	**7:0**	**0x80**	**cam_awb_k_r_l (R/W)**
	Controls the tint for the red channel (at the color temperature set by cam_awb_ccm_l_ctemp). This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC983 VAR(0x12, 0x0183)	**7:0**	**0x80**	**cam_awb_k_g_l (R/W)**
	Controls the tint for the green channel (at the color temperature set by cam_awb_ccm_l_ctemp). This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC984 VAR(0x12, 0x0184)	**7:0**	**0x80**	**cam_awb_k_b_l (R/W)**
	Controls the tint for the blue channel (at the color temperature set by cam_awb_ccm_l_ctemp). This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC985 VAR(0x12, 0x0185)	**7:0**	**0x80**	**cam_awb_k_r_r (R/W)**
	Controls the tint for the red channel (at the color temperature threshold set by cam_awb_tints_ctemp_threshold). This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC986 VAR(0x12, 0x0186)	**7:0**	**0x80**	**cam_awb_k_g_r (R/W)**
	Controls the tint for the green channel (at the color temperature threshold set by cam_awb_tints_ctemp_threshold). This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC987 VAR(0x12, 0x0187)	**7:0**	**0x80**	**cam_awb_k_b_r (R/W)**
	Controls the tint for the blue channel (at the color temperature threshold set by cam_awb_tints_ctemp_threshold). This value is unsigned fixed−point with 7 fractional bits. Changes take effect during Vertical Blanking.		
0xC988 VAR(0x12, 0x0188)	**15:0**	**0x0007**	**cam_altm_mode (R/W)**
	15:3	X	Reserved
	2	0x01	cam_altm_dynamic_damping_enable Enable dynamic damping for ALTM adaptation (0=disabled, 1=enabled). This value is unsigned.
	1	0x01	cam_altm_sharpness_enable Enable interpolation of the ALTM 'Reflectance Sharpening Strength' based on the cam_ll_brightness_metric: 0: Disabled. 1: Enabled. Reflectance sharpening enhances the texture and edge details during the dynamic range compression. This value is unsigned. Changes take effect during Vertical Blanking.
	0	0x01	cam_altm_mode_enable Enable Adaptive ALTM mode: 0: Disabled. 1: Enabled. When enabled, the dynamic brightness control cam_altm_key_k1 is coupled to ae_rule_avg_log_y_from_stats. This value is unsigned. Changes take effect during Vertical Blanking.
	Controls ALTM mode (Controls Adaptive ALTM Brightness and Adaptive Reflectance Sharpening Strength). This value is unsigned. Changes take effect during Vertical Blanking.		
0xC98A VAR(0x12, 0x018A)	**15:0**	**0x0080**	**cam_altm_key_k0 (R/W)**
	Noise floor used to calculate the key that controls the brightness of the tone mapped image. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC98C VAR(0x12, 0x018C)	31:0	0x00000000	cam_altm_key_k1 (RO)
	This value divided by cam_altm_key_k0 is used to calculate the key that controls the brightness of the tone mapped image. This parameter controls the brightness and is calculated by the firmware. This value is unsigned. Updates during Vertical Blanking.		
0xC990 VAR(0x12, 0x0190)	15:0	0x0010	cam_altm_lo_gamma (R/W)
	Contrast control parameter for the dark regions of an image. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC992 VAR(0x12, 0x0192)	15:0	0x0020	cam_altm_hi_gamma (R/W)
	Contrast control parameter for bright regions of the image. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC994 VAR(0x12, 0x0194)	15:0	0x00AF	cam_altm_k1_slope (R/W)
	K1_slope controls how the ALTM K1 parameter increases in low light. If the cam_altm_k1_slope is increased it will decrease the noise and detail in low light conditions. If cam_altm_k1_slope is decreased it will increase the noise and detail in low light conditions and increase the apparent brightness. This value is signed 2's complement. Changes take effect during Vertical Blanking.		
0xC996 VAR(0x12, 0x0196)	15:0	0x0400	cam_altm_k1_min (R/W)
	The minimum allowable k1 value. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC998 VAR(0x12, 0x0198)	15:0	0xFFFF	cam_altm_k1_max (R/W)
	The maximum allowable k1 value. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC99A VAR(0x12, 0x019A)	15:0	0x0400	cam_altm_dark_bm (R/W)
	Programmable dark starting brightness value below which weight is 1. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC99C VAR(0x12, 0x019C)	15:0	0x0800	cam_altm_bright_bm (R/W)
	Programmable bright ending brightness value above which weight is 0. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC99E VAR(0x12, 0x019E)	15:0	0x0001	cam_altm_k1_damping_speed (R/W)
	Programmable damping value for ALTM dynamic adaptation. A lower value means slower adaptation (min = 1), a higher value means faster adaptation (max = 32) (unity=1). This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9A0 VAR(0x12, 0x01A0)	15:0	0x00C8	cam_altm_sharpness_dark_bm (R/W)
	This is the low brightness metric threshold for the ALTM reflectance sharpening strength. If the brightness metric is less than cam_altm_sharpness_dark_bm, the ALTM reflectance sharpening strength is cam_altm_sharpness_strength_dark. If the brightness metric is greater than cam_altm_sharpness_bright_bm, the ALTM reflectance sharpening strength is cam_altm_sharpness_strength_bright. When the brightness metric is between these limits the ALTM reflectance sharpening strength will be interpolated between the bright and dark values. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC9A2 VAR(0x12, 0x01A2)	15:0	0x0B54	cam_altm_sharpness_bright_bm (R/W)
	This is the high brightness metric threshold for the ALTM reflectance sharpening strength. If the brightness metric is greater than cam_altm_sharpness_bright_bm, the ALTM reflectance sharpening strength is cam_altm_sharpness_strength_bright. If the brightness metric is less than cam_altm_sharpness_dark_bm, the ALTM reflectance sharpening strength is cam_altm_sharpness_strength_dark. When the brightness metric is between these limits the ALTM reflectance sharpening strength will be interpolated between the bright and dark values. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC9A4 VAR(0x12, 0x01A4)	**15:0**	**0x0005**	**cam_altm_sharpness_strength_dark (R/W)**
	This is the ALTM reflectance sharpening strength used when the brightness metric is below cam_altm_ sharpness_dark_bm. When the brightness metric is between the cam_altm_sharpness_bright_bm threshold and the cam_altm_sharpness_dark_bm threshold the ALTM reflectance sharpening strength will be interpolated between the cam_altm_sharpness_strength_bright and cam_altm_sharpness_strength_dark values. Reflectance sharpening enhances the texture and edge details during the dynamic range compression. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9A6 VAR(0x12, 0x01A6)	**15:0**	**0x0008**	**cam_altm_sharpness_strength_bright (R/W)**
	This is the ALTM reflectance sharpening strength used when the brightness metric is greater than cam_altm_ sharpness_bright_bm. When the brightness metric is between the cam_altm_sharpness_bright_bm threshold and the cam_altm_sharpness_dark_bm threshold the ALTM reflectance sharpening strength will be interpolated between the cam_altm_sharpness_strength_bright and cam_altm_sharpness_strength_dark values. Reflectance sharpening enhances the texture and edge details during the dynamic range compression. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9A8 VAR(0x12, 0x01A8)	**15:0**	**0x001E**	**cam_stat_mode (R/W)**
	15:5	X	Reserved
	4	0x01	cam_stat_mode_awb_clip_output_relative AWB/CLIP window co−ordinates are specified relative to: 0: Sensor window. 1: Output window. This selects the AWB and CLIP ‘parent’ window. This value is unsigned. Changes take effect after a Refresh command.
	3	0x01	cam_stat_mode_awb_clip_auto Controls AWB/CLIP window: 0: Manual: host sets window co−ordinates 1: Auto: firmware calculates window co−ordinates for full FOV. This value is unsigned. Changes take effect after a Refresh command.
	2	0x01	cam_stat_mode_ae_altm_fd_output_relative AE/ALTM/FD window co−ordinates are specified relative to: 0: Sensor window. 1: Output window. This selects the AE, ALTM, and FD ‘parent’ window. This value is unsigned. Changes take effect after a Refresh command.
	1	0x01	cam_stat_mode_ae_altm_fd_auto Controls AE/ALTM/FD window: 0: Manual: host sets window co−ordinates. 1: Auto: firmware calculates window co−ordinates for full FOV. This value is unsigned. Changes take effect after a Refresh command.
	0	0x00	cam_stat_mode_one_shot Controls statistics acquisition mode: 0: Continuous: statistics are acquired every frame. 1: One−shot: statistics are only acquired after being triggered. This value is unsigned. Changes take effect during Vertical Blanking.
	Statistics mode control flags. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC9AA VAR(0x12, 0x01AA)	**15:0**	**0x0000**	**cam_stat_control (R/W)**
	15:1	X	Reserved
	0	0x00	cam_stat_control_trigger When set, triggers statistics acquisition in one−shot mode: 0: No trigger 1: Trigger. Auto−clears after acquisition, host should poll this bit. This value is unsigned. Changes take effect during Vertical Blanking.
	Acquisition control flags. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9AC VAR(0x12, 0x01AC)	**7:0**	**0x00**	**cam_stat_exclude_control (R/W)**
	7:3	X	Reserved
	2	0x00	cam_stat_exclude_altm Exclusion window control for ALTM statistics: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect after a Refresh command.
	1	0x00	cam_stat_exclude_awb Exclusion window control for AWB statistics: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect after a Refresh command.
	0	0x00	cam_stat_exclude_ae Exclusion window control for AE statistics: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect after a Refresh command.
	Exclusion window control flags. This value is unsigned. Changes take effect after a Refresh command.		
0xC9B0 VAR(0x12, 0x01B0)	**15:0**	**0x0000**	**cam_stat_exclude_window_x_offset (R/W)**
	The horizontal offset of the first pixel to be excluded, relative to the sensor output window. This value is unsigned. Changes take effect after a Refresh command.		
0xC9B2 VAR(0x12, 0x01B2)	**15:0**	**0x0000**	**cam_stat_exclude_window_y_offset (R/W)**
	The vertical offset of the first pixel to be excluded, relative to the sensor output window. This value is unsigned. Changes take effect after a Refresh command.		
0xC9B4 VAR(0x12, 0x01B4)	**15:0**	**0x0000**	**cam_stat_exclude_window_width (R/W)**
	The width of the exclusion window, in pixels. This value is unsigned. Changes take effect after a Refresh command.		
0xC9B6 VAR(0x12, 0x01B6)	**15:0**	**0x0000**	**cam_stat_exclude_window_height (R/W)**
	The height of the exclusion window, in rows. This value is unsigned. Changes take effect after a Refresh command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC9B8 VAR(0x12, 0x01B8)	15:0	0x0000	cam_stat_ae_altm_fd_window_x_offset (R/W)
	The horizontal offset, in pixels, of the first pixel of the AE/ALTM/Flicker Detection statistics window, specified relative to the selected parent window. The parent window is determined by cam_stat_mode_ae_altm_fd_output_relative. This value is ignored if cam_stat_mode_ae_altm_fd_auto is 1. This value is unsigned. Changes take effect after a Refresh command.		
0xC9BA VAR(0x12, 0x01BA)	15:0	0x0000	cam_stat_ae_altm_fd_window_y_offset (R/W)
	The vertical offset, in lines, of the first pixel of the AE/ALTM/Flicker Detection statistics window, specified relative to the selected parent window. The parent window is determined by cam_stat_mode_ae_altm_fd_output_relative. This value is ignored if cam_stat_mode_ae_altm_fd_auto is 1. This value is unsigned. Changes take effect after a Refresh command.		
0xC9BC VAR(0x12, 0x01BC)	15:0	0x0500	cam_stat_ae_altm_fd_window_width (R/W)
	The width of the AE/ALTM/Flicker Detection statistics window, in pixels. This value is ignored if cam_stat_mode_ae_altm_fd_auto is 1. This value is unsigned. Changes take effect after a Refresh command.		
0xC9BE VAR(0x12, 0x01BE)	15:0	0x03C0	cam_stat_ae_altm_fd_window_height (R/W)
	The height of the AE/ALTM/Flicker Detection statistics window, in lines. This value is ignored if cam_stat_mode_ae_altm_fd_auto is 1. This value is unsigned. Changes take effect after a Refresh command.		
0xC9C0 VAR(0x12, 0x01C0)	15:0	0x0000	cam_stat_awb_clip_window_x_offset (R/W)
	The horizontal offset, in pixels, of the first pixel of the AWB/Clipping statistics window, specified relative to the selected parent window. The parent window is determined by cam_stat_mode_ae_altm_fd_output_relative. This value is ignored if cam_stat_mode_awb_clip_auto is 1. This value is unsigned. Changes take effect after a Refresh command.		
0xC9C2 VAR(0x12,0x01C2)	15:0	0x0000	cam_stat_awb_clip_window_y_offset (R/W)
	The vertical offset, in lines, of the first pixel of the AWB/Clipping statistics window, specified relative to the selected parent window. The parent window is determined by cam_stat_mode_ae_altm_fd_output_relative. This value is ignored if cam_stat_mode_awb_clip_auto is 1. This value is unsigned. Changes take effect after a Refresh command.		
0xC9C4 VAR(0x12, 0x01C4)	15:0	0x0500	cam_stat_awb_clip_window_width (R/W)
	The width of the AWB/Clipping statistics window, in pixels. This value is ignored if cam_stat_mode_awb_clip_auto is 1. This value is unsigned. Changes take effect after a Refresh command.		
0xC9C6 VAR(0x12, 0x01C6)	15:0	0x03C0	cam_stat_awb_clip_window_height (R/W)
	The height of the AWB/Clipping statistics window, in lines. This value is ignored if cam_stat_mode_awb_clip_auto is 1. This value is unsigned. Changes take effect after a Refresh command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC9C8 VAR(0x12, 0x01C8)	**15:0**	**0x0003**	**cam_ll_mode (R/W)**
	15:2	X	Reserved
	1	0x01	cam_ll_exec_contrast_gamma_bright_curve Enable firmware calculation of the gamma/contrast curves for bright conditions: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	cam_ll_exec_contrast_gamma_dark_curve Controls whether the device calculates the dark conditions (noise−reduction) gamma/contrast curve: 0: Noise−reduction gamma/contrast curve is not calculated. 1: Noise−reduction gamma/contrast curve is auto−calculated from cam_ll_gamma, cam_ll_stop_contrast_gradient and cam_ll_stop_contrast_luma_percentage. This value is unsigned. Changes take effect after a Change−Config command.
	Low light execution mode control (flags). This value is unsigned. Changes take effect after a Change−Config command.		
0xC9CA VAR(0x12, 0x01CA)	**15:0**	**0x0000**	**cam_ll_brightness_metric (RO)**
	Brightness Metric in log2 space (higher=brighter). This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xC9CC VAR(0x12, 0x01CC)	**15:0**	**0xF900**	**cam_ll_bm_offset (R/W)**
	Scene brightness calculation offset for the brightness metric log. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC9CE VAR(0x12, 0x01CE)	**15:0**	**0x0000**	**cam_ll_sensor_red_gain_metric (RO)**
	Gain metric for the sensor's red pixels. This is the product of all analog and digital gains applied to the red pixels within the external sensor. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		
0xC9D0 VAR(0x12, 0x01D0)	**15:0**	**0x0000**	**cam_ll_sensor_green_gain_metric (RO)**
	Gain metric for the sensor's green pixels. This is the product of all analog and digital gains applied to the green pixels within the external sensor. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		
0xC9D2 VAR(0x12, 0x01D2)	**15:0**	**0x0000**	**cam_ll_sensor_blue_gain_metric (RO)**
	Gain metric for the sensor's blue pixels. This is the product of all analog and digital gains applied to the blue pixels within the external sensor. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		
0xC9D4 VAR(0x12, 0x01D4)	**15:0**	**0x0000**	**cam_ll_red_gain_metric (RO)**
	This is the red channel total gain metric. It is the product of all analog and digital gains applied to the red pixels. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		
0xC9D6 VAR(0x12, 0x01D6)	**15:0**	**0x0000**	**cam_ll_green_gain_metric (RO)**
	This is the green channel total gain metric. It is the product of all analog and digital gains applied to the green pixels. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		
0xC9D8 VAR(0x12, 0x01D8)	**15:0**	**0x0000**	**cam_ll_blue_gain_metric (RO)**
	This is the blue channel total gain metric. It is the product of all analog and digital gains applied to the blue pixels. This value is unsigned fixed−point with 5 fractional bits. Updates during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC9DA VAR(0x12, 0x01DA)	15:0	0x0000	cam_ll_snr_metric (RO)
	Signal to noise ratio metric. This is a metric used when interpolating the adaptive noise reduction strength. It is the average of the logarithm of the image luma divided by the gain metric. This value is signed 2's complement fixed−point with 8 fractional bits. Updates during Vertical Blanking.		
0xC9DC VAR(0x12, 0x01DC)	15:0	0x01F4	cam_ll_dark_bm (R/W)
	The cam_ll_dark_bm threshold is the low limit for interpolation based on the brightness metric (cam_ll_brightness_ metric). For brightness metric values below the cam_ll_dark_bm threshold the low value is used and for brightness metric values above the cam_ll_bright_bm threshold the high value is used. For brightness metric values between these two thresholds the value is interpolated from the high and low values. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC9DE VAR(0x12, 0x01DE)	15:0	0x0BB8	cam_ll_bright_bm (R/W)
	The cam_ll_bright_bm high threshold is the high limit for interpolation based on the brightness metric (cam_ll_brightness_metric). For brightness metric values above the cam_ll_bright_bm threshold the high value is used and for brightness metric values below the cam_ll_dark_bm threshold the low value is used. For brightness metric values between these two thresholds the value is interpolated from the high and low values. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC9E0 VAR(0x12, 0x01E0)	15:0	0x0DC0	cam_ll_high_gm (R/W)
	The internal gain metric is the largest of the three color channel gain metrics: cam_ll_red_gain_metric, cam_ll_green_gain_metric, and cam_ll_blue_gain_metric. The cam_ll_high_gm high threshold is the high limit for i nterpolation based on the internal gain metric. For gain metric values above the cam_ll_high_gm threshold the high value is used and for gain metric values below the cam_ll_low_gm threshold the low value is used. For gain metric values between these two thresholds the value is interpolated from the high and low values. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC9E2 VAR(0x12, 0x01E2)	15:0	0x0020	cam_ll_low_gm (R/W)
	The internal gain metric is the largest of the three color channel gain metrics: cam_ll_red_gain_metric, cam_ll_green_gain_metric, and cam_ll_blue_gain_metric. The cam_ll_high_gm high threshold is the high limit for interpolation based on the internal gain metric. For gain metric values above the cam_ll_high_gm threshold the high value is used and for gain metric values below the cam_ll_low_gm threshold the low value is used. For gain metric values between these two thresholds the value is interpolated from the high and low values. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC9E6 VAR(0x12, 0x01E6)	7:0	0x4D	cam_ll_demosaic_high (R/W)
	The demosaic edge threshold decides if the current pixel is on an edge in the demosaic transform engine. The edge threshold is interpolated from cam page variables based on the internal gain metric (gm). The internal gm is the largest of the three color channel gms: cam_ll_red_gain_metric, cam_ll_green_gain_metric, and cam_ll_blue_gain_metric. When the internal gm is above the cam_ll_high_gm threshold, the demosaic edge threshold is set to cam_ll_demosaic_high. Between the cam_ll_high_gm threshold and the cam_ll_low_gm, the demosaic edge threshold is interpolated between cam_ll_demosaic_high and cam_ll_demosaic_low. When the internal gain metric is below the cam_ll_low_gm threshold, the demosaic edge threshold is set to cam_ll_demosaic_low. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9E7 VAR(0x12, 0x01E7)	7:0	0x08	cam_ll_demosaic_low (R/W)
	The demosaic edge threshold decides if the current pixel is on an edge in the demosaic transform engine. The edge threshold is interpolated from cam page variables based on the internal gain metric (gm). The internal gm is the largest of the three color channel gms: cam_ll_red_gain_metric, cam_ll_green_gain_metric, and cam_ll_blue_gain_metric. When the internal gm is above the cam_ll_high_gm threshold, the demosaic edge threshold is set to cam_ll_demosaic_high. Between the cam_ll_high_gm threshold and the cam_ll_low_gm, the demosaic edge threshold is interpolated between cam_ll_demosaic_high and cam_ll_demosaic_low. When the internal gain metric is below the cam_ll_low_gm threshold, the demosaic edge threshold is set to cam_ll_demosaic_low. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9E8 VAR(0x12, 0x01E8)	7:0	0x01	cam_ll_ap_gain_dark (R/W)
	Aperture gain for dark images below the cam_ll_dark_bm threshold. Between the cam_ll_dark_bm threshold and the cam_ll_bright_bm threshold, the aperture gain is interpolated from cam_ll_ap_gain_dark and cam_ll_ap_gain_bright. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC9E9 VAR(0x12, 0x01E9)	7:0	0x02	cam_ll_ap_gain_bright (R/W)
	Aperture gain for bright images above the cam_ll_bright_bm threshold. Between the cam_ll_dark_bm threshold and the cam_ll_bright_bm threshold, the aperture gain is interpolated from cam_ll_ap_gain_dark and cam_ll_ap_gain_bright. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9EA VAR(0x12, 0x01EA)	7:0	0x4D	cam_ll_ap_thresh_high (R/W)
	Aperture knee value for images with a gain metric above the cam_ll_high_gm threshold. Between the cam_ll_low_gm threshold and the cam_ll_high_gm threshold, the aperture knee value is interpolated from between cam_ll_ap_thresh_low and cam_ll_ap_thresh_high based on the gain metric. The gain metric is the largest of the three color channel gain metrics; cam_ll_blue_gain_metric, cam_ll_green_gain_metric, and cam_ll_red_gain_ metric. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9EB VAR(0x12, 0x01EB)	7:0	0x08	cam_ll_ap_thresh_low (R/W)
	Aperture knee value for images with a gain metric below the cam_ll_low_gm threshold. Between the cam_ll_low_gm threshold and the cam_ll_high_gm threshold, the aperture knee value is interpolated from between cam_ll_ap_thresh_low and cam_ll_ap_thresh_high based on the gain metric. The gain metric is the largest of the three color channel gain metrics; cam_ll_blue_gain_metric, cam_ll_green_gain_metric, and cam_ll_red_gain_ metric. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9EC VAR(0x12, 0x01EC)	15:0	0x0BB8	cam_ll_contrast_bright_bm (R/W)
	Bright endpoint value of cam_ll_brightness_metric for the brightness−dependent gamma/contrast adaptation. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC9EE VAR(0x12, 0x01EE)	15:0	0x01F4	cam_ll_contrast_dark_bm (R/W)
	Dark endpoint value of cam_ll_brightness_metric for the brightness−dependent gamma/contrast adaptation. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC9F0 VAR(0x12, 0x01F0)	15:0	0x0064	cam_ll_gamma (R/W)
	This is the exponent of the function mapping display output intensity. For example, sRGB gamma is equal to 2.2 − this would be expressed as 220. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9F2 VAR(0x12, 0x01F2)	7:0	0x20	cam_ll_contrast_gradient_bright (R/W)
	The gamma/contrast curve is effectively an 'S' curve, with one point (the inflection point) where input luma == output luma. This variable controls the slope (at the inflection point) for bright conditions, corresponding to cam_ll_contrast_bright_bm. This variable can have values from 0.5 (16) to 2.0 (64). Values less than 1.0 will decrease the contrast; values larger than 1.0 will increase it. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC9F3 VAR(0x12, 0x01F3)	7:0	0x20	cam_ll_contrast_gradient_dark (R/W)
	The gamma/contrast curve is effectively an 'S' curve, with one point (the inflection point) where input luma == output luma. This variable controls the slope (at the inflection point) for dark conditions, corresponding to cam_ll_contrast_dark_bm. This variable can have values from 0.5 (16) to 2.0 (64). Values less than 1.0 will decrease the contrast; values larger than 1.0 will increase it. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xC9F4 VAR(0x12, 0x01F4)	7:0	0x3C	cam_ll_contrast_intercept_point_bright (R/W)
	The gamma/contrast curve is effectively an 'S' curve, with one point (the inflection point) where input luma == output luma. This variable controls the location of this point for bright conditions, corresponding to cam_ll_contrast_bright_bm. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xC9F5 VAR(0x12, 0x01F5)	7:0	0x28	cam_ll_contrast_intercept_point_dark (R/W)
	The gamma/contrast curve is effectively an 'S' curve, with one point (the inflection point) where input luma == output luma. This variable controls the location of this point for dark conditions, corresponding to cam_ll_contrast_dark_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9F6 VAR(0x12, 0x01F6)	15:0	0x0010	cam_ll_bright_fade_to_black_luma (R/W)
	This is the upper threshold luma value for the fade to black feature. This controls when the fade−to−black starts. That is, when ll_average_luma_fade_to_black is above this value, no fade occurs. When ll_average_luma_fade_to_black is between the cam_ll_bright_fade_to_black_luma upper threshold and the cam_ll_dark_fade_to_black_luma lower threshold the gamma curve is interpolated between the normal gamma curve and a curve that forces all pixels to black. When ll_average_luma_fade_to_black is below the cam_ll_dark_fade_to_black_luma lower threshold the black gamma curve is selected and all pixels are forced to black. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9F8 VAR(0x12, 0x01F8)	15:0	0x0001	cam_ll_dark_fade_to_black_luma (R/W)
	This is the lower threshold luma value for the fade to black feature. This controls when the fade−to−black stops. That is, when ll_average_luma_fade_to_black is below this value, the image is fully black. When ll_average_luma_fade_to_black is between the cam_ll_bright_fade_to_black_luma upper threshold and the cam_ll_dark_fade_to_black_luma lower threshold the gamma curve is interpolated between the normal gamma curve and a curve that forces all pixels to black. When ll_average_luma_fade_to_black is above cam_ll_bright_fade_to_black_luma then the normal gamma curve is selected and no fading occurs. This value is unsigned. Changes take effect during Vertical Blanking.		
0xC9FA VAR(0x12, 0x01FA)	15:0	0x00C8	cam_ll_sdc_dp_dark_bm (R/W)
	Dark threshold for single dark pixel defect correction. When the brightness metric is below this value, the cam_ll_sdc_dp_strength_dark value is used for the single dark pixel strength parameter. When the brightness metric is between the cam_ll_sdc_dp_dark_bm threshold and the cam_ll_sdc_dp_bright_bm threshold, the single dark pixel strength parameter value is interpolated from between cam_ll_sdc_dp_strength_dark and cam_ll_sdc_dp_strength_bright. Single dark pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC9FC VAR(0x12, 0x01FC)	15:0	0x0B54	cam_ll_sdc_dp_bright_bm (R/W)
	Bright threshold for single dark pixel defect correction. When the brightness metric is above this value, the cam_ll_sdc_dp_strength_bright value is used for the single dark pixel strength parameter. When the brightness metric is between the cam_ll_sdc_dp_dark_bm threshold and the cam_ll_sdc_dp_bright_bm threshold, the single dark pixel strength parameter value is interpolated from between cam_ll_sdc_dp_strength_dark and cam_ll_sdc_dp_strength_bright. Single dark pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xC9FE VAR(0x12, 0x01FE)	7:0	0x08	cam_ll_sdc_dp_strength_dark (R/W)
	Single dark pixel defect correction strength parameter for dark images. This controls how aggressively the defect correction hardware corrects potential single dark pixel defects. When the brightness metric is below cam_ll_sdc_dp_dark_bm this value is used for the single dark pixel strength parameter. When the brightness metric is between the cam_ll_sdc_dp_dark_bm threshold and the cam_ll_sdc_dp_bright_bm threshold, the single dark pixel strength parameter value is interpolated from between cam_ll_sdc_dp_strength_dark and cam_ll_sdc_dp_strength_bright. The recommend range is from 80 to 100, the lower the value the more aggressive the single dark pixel detection is. Single dark pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA00 VAR(0x12, 0x0200)	15:0	0x00C8	cam_ll_sdc_hp_dark_bm (R/W)
	Dark threshold for single hot pixel defect correction. When the brightness metric is below this value, the cam_ll_sdc_hp_strength_dark value is used for the single hot pixel strength parameter. When the brightness metric is between the cam_ll_sdc_hp_dark_bm threshold and the cam_ll_sdc_hp_bright_bm threshold, the single hot pixel strength parameter value is interpolated from between cam_ll_sdc_hp_strength_dark and cam_ll_sdc_hp_strength_bright. Single hot pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA02 VAR(0x12, 0x0202)	15:0	0x0B54	cam_ll_sdc_hp_bright_bm (R/W)
	Bright threshold for single hot pixel defect correction. When the brightness metric is above this value, the cam_ll_sdc_hp_strength_bright value is used for the single hot pixel strength parameter. When the brightness metric is between the cam_ll_sdc_hp_dark_bm threshold and the cam_ll_sdc_hp_bright_bm threshold, the single hot pixel strength parameter value is interpolated from between cam_ll_sdc_hp_strength_dark and cam_ll_sdc_hp_strength_bright. Single hot pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA04 VAR(0x12, 0x0204)	7:0	0x08	cam_ll_sdc_hp_strength_dark (R/W)
	Single hot or warm pixel defect correction strength parameter for dark images. This controls how aggressively the defect correction hardware corrects potential single hot pixel defects. When the brightness metric is below cam_ll_sdc_hp_dark_bm this value is used for the single hot pixel strength parameter. When the brightness metric is between the cam_ll_sdc_hp_dark_bm threshold and the cam_ll_sdc_hp_bright_bm threshold, the single hot pixel strength parameter value is interpolated from between cam_ll_sdc_hp_strength_dark and cam_ll_sdc_hp_strength_bright. The recommend range is from 5 to 15, the lower the value the more aggressive the single hot pixel defect detection is. Single hot pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA05 VAR(0x12, 0x0205)	7:0	0x0F	cam_ll_sdc_hp_strength_bright (R/W)
	Single hot or warm pixel defect correction strength parameter for bright images. This controls how aggressively the defect correction hardware corrects potential single hot pixel defects. When the brightness metric is above cam_ll_sdc_hp_bright_bm this value is used for the single hot pixel strength parameter. When the brightness metric is between the cam_ll_sdc_hp_dark_bm threshold and the cam_ll_sdc_hp_bright_bm threshold, the single hot pixel strength parameter value is interpolated from between cam_ll_sdc_hp_strength_dark and cam_ll_sdc_hp_strength_bright. The recommend range is from 5 to 15, the lower the value the more aggressive the single hot pixel defect detection is. Single hot pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA06 VAR(0x12, 0x0206)	15:0	0x00C8	cam_ll_sdc_crossfactor_dark_bm (R/W)
	Dark threshold for fine detail single defect correction. When the brightness metric is below this value, the cam_ll_sdc_crossfactor_strength_dark value is used for the fine detail single defect correction threshold. When the brightness metric is between the cam_ll_sdc_crossfactor_dark_bm threshold and the cam_ll_sdc_crossfactor_bright_bm threshold, the fine detail single defect correction threshold value is interpolated from between cam_ll_sdc_crossfactor_strength_dark and cam_ll_sdc_crossfactor_strength_bright. Single defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA08 VAR(0x12, 0x0208)	15:0	0x0B54	cam_ll_sdc_crossfactor_bright_bm (R/W)
	Bright threshold for fine detail single defect correction. When the brightness metric is above this value, the cam_ll_sdc_crossfactor_strength_bright value is used for the fine detail single defect correction threshold. When the brightness metric is between the cam_ll_sdc_crossfactor_dark_bm threshold and the cam_ll_sdc_crossfactor_bright_bm threshold, the fine detail single defect correction threshold value is interpolated from between cam_ll_sdc_crossfactor_strength_dark and cam_ll_sdc_crossfactor_strength_bright. Single defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA0A VAR(0x12, 0x020A)	7:0	0x04	cam_ll_sdc_crossfactor_strength_dark (R/W)
	Fine detail single defect correction threshold for dark images. This controls how aggressively the defect correction hardware corrects potential single dark and hot pixel defects in fine details of the image. When the brightness metric is below cam_ll_sdc_crossfactor_dark_bm this value is used for the fine detail single defect correction threshold. When the brightness metric is between the cam_ll_sdc_crossfactor_dark_bm threshold and the cam_ll_sdc_crossfactor_bright_bm threshold, the fine detail single defect correction threshold value is interpolated from between cam_ll_sdc_crossfactor_strength_dark and cam_ll_sdc_crossfactor_strength_bright. The recommend range is from 2 to 8, the lower the value the less aggressive the single pixel defect detection is in fine details. Single defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA0B VAR(0x12, 0x020B)	7:0	0x0C	cam_ll_sdc_crossfactor_strength_bright (R/W)
	Fine detail single defect correction threshold for bright images. This controls how aggressively the defect correction hardware corrects potential single dark and hot pixel defects in fine details of the image. When the brightness metric is above cam_ll_sdc_crossfactor_bright_bm, then this value is used for the fine detail single defect correction threshold. When the brightness metric is between the cam_ll_sdc_crossfactor_dark_bm threshold and the cam_ll_sdc_crossfactor_bright_bm threshold, the fine detail single defect correction threshold value is interpolated from between cam_ll_sdc_crossfactor_strength_dark and cam_ll_sdc_crossfactor_strength_bright. The recommend range is from 2 to 8, the lower the value the less aggressive the single pixel defect detection is in fine details. Single defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA0C VAR(0x12, 0x020C)	15:0	0x00C8	cam_ll_sdc_maxfactor_dark_bm (R/W)
	Dark threshold for single defect correction limiting. When the brightness metric is below this value, the cam_ll_sdc_maxfactor_strength_dark value is used for the single pixel defect maxfactor limiting. When the brightness metric is between the cam_ll_sdc_maxfactor_dark_bm threshold and the cam_ll_sdc_maxfactor_bright_bm threshold, the single pixel defect maxfactor limiting value is interpolated from between cam_ll_sdc_maxfactor_strength_dark and cam_ll_sdc_maxfactor_strength_bright. Single pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA0E VAR(0x12, 0x020E)	15:0	0x0B54	cam_ll_sdc_maxfactor_bright_bm (R/W)
	Bright threshold for single defect correction limiting. When the brightness metric is above this value, the cam_ll_sdc_maxfactor_strength_bright value is used for the single pixel defect maxfactor limiting. When the brightness metric is between the cam_ll_sdc_maxfactor_dark_bm threshold and the cam_ll_sdc_maxfactor_bright_bm threshold, the single pixel defect maxfactor limiting value is interpolated from between cam_ll_sdc_maxfactor_strength_dark and cam_ll_sdc_maxfactor_strength_bright. Single pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA10 VAR(0x12, 0x0210)	7:0	0x01	cam_ll_sdc_maxfactor_strength_dark (R/W)
	Single pixel defect correction limiting strength parameter for dark images. The single pixel defect maxfactor limits the fine detail defect correction hold−off. This prevents missing the detection of defects with high luma value excursions within fine detail areas of the image. When the brightness metric is below cam_ll_sdc_maxfactor_dark_bm this value is used for the single pixel defect crossfactor limiting. When the brightness metric is between the cam_ll_sdc_ maxfactor_dark_bm threshold and the cam_ll_sdc_maxfactor_bright_bm, the single pixel defect crossfactor limiting value is interpolated from between cam_ll_sdc_maxfactor_strength_dark and cam_ll_sdc_maxfactor_strength_bright. The lower the value the more aggressive the single pixel defect detection is in detection of defects with high luma value excursions. Single pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA11 VAR(0x12, 0x0211)	7:0	0x01	cam_ll_sdc_maxfactor_strength_bright (R/W)
	Single pixel defect correction limiting strength parameter for bright images. The single pixel defect maxfactor limits the fine detail defect correction hold−off. This prevents missing the detection of defects with high luma value excursions within fine detail areas of the image. When the brightness metric is above cam_ll_sdc_maxfactor_bright_bm this value is used for the single pixel defect crossfactor limiting. When the brightness metric is between the cam_ll_sdc_ maxfactor_dark_bm threshold and the cam_ll_sdc_maxfactor_bright_bm, the single pixel defect crossfactor limiting value is interpolated from between cam_ll_sdc_maxfactor_strength_dark and cam_ll_sdc_maxfactor_strength_bright. The lower the value the more aggressive the single pixel defect detection is in detection of defects with high luma value excursions. Single pixel defect correction is only enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA12 VAR(0x12, 0x0212)	15:0	0x1000	cam_ll_sdc_th_bm (R/W)
	Brightness metric threshold for enabling single defect correction. Single defect correction is enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA16 VAR(0x12, 0x0216)	15:0	0x00C8	cam_ll_cdc_dp_dark_bm (R/W)
	Dark threshold for dark pixel cluster defect correction. When the brightness metric is below this value, the cam_ll_cdc_dp_strength_dark value is used for the dark cluster strength parameter. When the brightness metric is between the cam_ll_cdc_dp_dark_bm threshold and the cam_ll_cdc_dp_bright_bm threshold, the dark cluster strength parameter value is interpolated from between cam_ll_cdc_dp_strength_dark and cam_ll_cdc_dp_strength_bright. Dark cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA18 VAR(0x12, 0x0218)	15:0	0x0B54	cam_ll_cdc_dp_bright_bm (R/W)
	Bright threshold for dark pixel cluster defect correction. When the brightness metric is above this value, the cam_ll_cdc_dp_strength_bright value is used for the dark cluster strength parameter. When the brightness metric is between the cam_ll_cdc_dp_dark_bm threshold and the cam_ll_cdc_dp_bright_bm threshold, the dark cluster strength parameter value is interpolated from between cam_ll_cdc_dp_strength_dark and cam_ll_cdc_dp_strength_bright. Dark cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA1A VAR(0x12, 0x021A)	7:0	0x08	cam_ll_cdc_dp_strength_dark (R/W)
	Dark cluster defect correction strength parameter for dark images. This controls how aggressively the defect correction hardware corrects potential dark cluster defects. When the brightness metric is below cam_ll_cdc_dp_dark_bm this value is used for the dark cluster strength parameter. When the brightness metric is between the cam_ll_cdc_dp_dark_bm threshold and the cam_ll_cdc_dp_bright_bm threshold, the dark cluster strength parameter value is interpolated from between cam_ll_cdc_dp_strength_dark and cam_ll_cdc_dp_strength_bright. The lower the value the more aggressive the dark cluster detection is. Dark cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA1B VAR(0x12, 0x021B)	7:0	0x0F	cam_ll_cdc_dp_strength_bright (R/W)
	Dark cluster defect correction strength parameter for bright images. This controls how aggressively the defect correction hardware corrects potential dark cluster defects. When the brightness metric is above cam_ll_cdc_dp_bright_bm this value is used for the dark cluster strength parameter. When the brightness metric is between the cam_ll_cdc_dp_dark_bm threshold and the cam_ll_cdc_dp_bright_bm threshold, the dark cluster strength parameter value is interpolated from between cam_ll_cdc_dp_strength_dark and cam_ll_cdc_dp_strength_bright. The lower the value the more aggressive the dark cluster detection is. Dark cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA1C VAR(0x12, 0x021C)	15:0	0x00C8	cam_ll_cdc_hp_dark_bm (R/W)
	Dark threshold for cluster hot pixel defect correction. When the brightness metric is below this value, the cam_ll_cdc_hp_strength_dark value is used for the cluster hot pixel strength parameter. When the brightness metric is between the cam_ll_cdc_hp_dark_bm threshold and the cam_ll_cdc_hp_bright_bm threshold, the cluster hot pixel strength parameter value is interpolated from between cam_ll_cdc_hp_strength_dark and cam_ll_cdc_hp_strength_bright. Cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA1E VAR(0x12, 0x021E)	15:0	0x0B54	cam_ll_cdc_hp_bright_bm (R/W)
	Bright threshold for cluster hot pixel defect correction. When the brightness metric is above this value, the cam_ll_cdc_hp_strength_bright value is used for the cluster hot pixel strength parameter. When the brightness metric is between the cam_ll_cdc_hp_dark_bm threshold and the cam_ll_cdc_hp_bright_bm threshold, the cluster hot pixel strength parameter value is interpolated from between cam_ll_cdc_hp_strength_dark and cam_ll_cdc_hp_strength_bright. Cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA20 VAR(0x12, 0x0220)	7:0	0x08	cam_ll_cdc_hp_strength_dark (R/W)
	Cluster hot or warm pixel defect correction strength parameter for dark images. This controls how aggressively the defect correction hardware corrects potential cluster hot pixel defects. When the brightness metric is below cam_ll_cdc_hp_dark_bm this value is used for the cluster hot pixel strength parameter. When the brightness metric is between the cam_ll_cdc_hp_dark_bm threshold and the cam_ll_cdc_hp_bright_bm threshold, the cluster hot pixel strength parameter value is interpolated from between cam_ll_cdc_hp_strength_dark and cam_ll_cdc_hp_strength_bright. The lower the value the more aggressive the single hot pixel defect detection is. Cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA21 VAR(0x12, 0x0221)	7:0	0x0F	cam_ll_cdc_hp_strength_bright (R/W)
	Cluster hot or warm pixel defect correction strength parameter for bright images. This controls how aggressively the defect correction hardware corrects potential cluster hot pixel defects. When the brightness metric is above cam_ll_cdc_hp_bright_bm this value is used for the cluster hot pixel strength parameter. When the brightness metric is between the cam_ll_cdc_hp_dark_bm threshold and the cam_ll_cdc_hp_bright_bm threshold, the cluster hot pixel strength parameter value is interpolated from between cam_ll_cdc_hp_strength_dark and cam_ll_cdc_hp_strength_bright. The lower the value the more aggressive the cluster hot pixel defect detection is. Cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA22 VAR(0x12, 0x0222)	15:0	0x00C8	cam_ll_cdc_crossfactor_dark_bm (R/W)
	Dark threshold for fine detail cluster defect correction. When the brightness metric is above this value, the cam_ll_cdc_crossfactor_strength_bright value is used for the fine detail cluster defect correction threshold. When the brightness metric is between the cam_ll_cdc_crossfactor_dark_bm threshold and the cam_ll_cdc_ crossfactor_bright_bm threshold, the fine detail cluster defect correction threshold value is interpolated from between cam_ll_cdc_crossfactor_strength_dark and cam_ll_cdc_crossfactor_strength_bright. Cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA24 VAR(0x12, 0x0224)	15:0	0x0B54	cam_ll_cdc_crossfactor_bright_bm (R/W)
	Bright threshold for fine detail cluster defect correction. When the brightness metric is above this value, the cam_ll_cdc_crossfactor_strength_bright value is used for the fine detail cluster defect correction threshold. When the brightness metric is between the cam_ll_cdc_crossfactor_dark_bm threshold and the cam_ll_cdc_ crossfactor_bright_bm threshold, the fine detail cluster defect correction threshold value is interpolated from between cam_ll_cdc_crossfactor_strength_dark and cam_ll_cdc_crossfactor_strength_bright. Cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA26 VAR(0x12, 0x0226)	7:0	0x04	cam_ll_cdc_crossfactor_strength_dark (R/W)
	Fine detail cluster defect correction strength for dark images. This controls how aggressively the defect correction hardware corrects potential cluster defects within fine details of the image. When the brightness metric is below cam_ll_cdc_crossfactor_dark_bm, then this value is used for the fine detail cluster defect correction strength parameter. When the brightness metric is between the cam_ll_cdc_crossfactor_dark_bm threshold and the cam_ll_cdc_ crossfactor_bright_bm threshold, the fine detail cluster defect correction strength parameter value is interpolated from between cam_ll_cdc_crossfactor_strength_dark and cam_ll_cdc_crossfactor_strength_bright. The lower the value the less aggressive the defect detection is. Cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA27 VAR(0x12, 0x0227)	7:0	0x0C	cam_ll_cdc_crossfactor_strength_bright (R/W)
	Fine detail cluster defect correction strength for bright images. This controls how aggressively the defect correction hardware corrects potential cluster defects within fine details of the image. When the brightness metric is above cam_ll_cdc_crossfactor_bright_bm this value is used for the fine detail cluster defect correction strength parameter. When the brightness metric is between the cam_ll_cdc_crossfactor_dark_bm threshold and the cam_ll_cdc_ crossfactor_bright_bm threshold, the fine detail cluster defect correction strength parameter value is interpolated from between cam_ll_cdc_crossfactor_strength_dark and cam_ll_cdc_crossfactor_strength_bright. The lower the value the less aggressive the defect detection is. Cluster defect correction is only enabled when the brightness metric is less than cam_ll_cdc_th_bm threshold with hysteresis of cam_ll_cdc_gate_bm. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCA28 VAR(0x12, 0x0228)	15:0	0x1000	cam_ll_cdc_th_bm (R/W)
	Brightness metric threshold for enabling cluster defect correction. Cluster defect correction is enabled when the brightness metric is less than cam_ll_sdc_th_bm threshold with hysteresis of cam_ll_sdc_gate_bm. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA2C VAR(0x12, 0x022C)	15:0	0x0006	cam_ll_adacd_gr_weights_strength_low (R/W)
	Lower limit of AdaCD filtering strength. For scenes with a SNR value below cam_ll_adacd_gr_weights_low_snr, this is the filter strength that will be used. For scenes with a SNR value between cam_ll_adacd_gr_weights_low_snr and cam_ll_adacd_gr_weights_high_snr the filter strength will be a linear interpolation between cam_ll_adacd_gr_weights_strength_low and cam_ll_adacd_gr_weights_strength_high based on the value of cam_ll_snr_metric. Higher values will increase the filtering and trade sharpness for more noise reduction. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA2E VAR(0x12, 0x022E)	15:0	0x0003	cam_ll_adacd_gr_weights_strength_high (R/W)
	Upper limit of AdaCD filtering strength. For scenes with a SNR value above cam_ll_adacd_gr_weights_high_snr, this is the filter strength that will be used. For scenes with a SNR value between cam_ll_adacd_gr_weights_low_snr and cam_ll_adacd_gr_weights_high_snr the filter strength will be a linear interpolation between cam_ll_adacd_gr_weights_strength_low and cam_ll_adacd_gr_weights_strength_high based on the value of cam_ll_snr_metric. Higher values will increase the filtering and trade sharpness for more noise reduction. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA30 VAR(0x12, 0x0230)	15:0	0x03E8	cam_ll_adacd_gr_weights_low_snr (R/W)
	Lower SNR threshold for AdaCD filtering strength. For scenes with a SNR value below this threshold the cam_ll_adacd_gr_weights_strength_low filtering strength will be used. For scenes with a SNR value between cam_ll_adacd_gr_weights_low_snr and cam_ll_adacd_gr_weights_high_snr the filter strength will be a linear interpolation between cam_ll_adacd_gr_weights_strength_low and cam_ll_adacd_gr_weights_strength_high based on the value of cam_ll_snr_metric. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA32 VAR(0x12, 0x0232)	15:0	0x0D00	cam_ll_adacd_gr_weights_high_snr (R/W)
	Upper SNR threshold for AdaCD filtering strength. For scenes with a SNR value above this threshold the cam_ll_adacd_gr_weights_strength_high filtering strength will be used. For scenes with a SNR value between cam_ll_adacd_gr_weights_low_snr and cam_ll_adacd_gr_weights_high_snr the filter strength will be a linear interpolation between cam_ll_adacd_gr_weights_strength_low and cam_ll_adacd_gr_weights_strength_high based on the value of cam_ll_snr_metric. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA34 VAR(0x12, 0x0234)	15:0	0x0020	cam_ll_nr_lut_0_gain (R/W)
	Sensor analog gain for look up table entry 0. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This is paired with cam_ll_nr_lut_0_sigma and cam_ll_nr_lut_0_k0. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xCA36 VAR(0x12, 0x0236)	15:0	0x0034	cam_ll_nr_lut_0_sigma (R/W)
	AdaCD noise floor parameter for a sensor gain of cam_ll_nr_lut_0_gain. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xCA38 VAR(0x12, 0x0238)	15:0	0x0093	cam_ll_nr_lut_0_k0 (R/W)
	AdaCD noise model parameter for a sensor gain of cam_ll_nr_lut_0_gain. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA3C VAR(0x12, 0x023C)	15:0	0x0058	cam_ll_nr_lut_1_gain (R/W)
	Sensor analog gain for look up table entry 1. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This is paired with cam_ll_nr_lut_1_sigma and cam_ll_nr_lut_1_k0. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xCA3E VAR(0x12, 0x023E)	15:0	0x0037	cam_ll_nr_lut_1_sigma (R/W)
	AdaCD noise floor parameter for a sensor gain of cam_ll_nr_lut_1_gain. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xCA40 VAR(0x12, 0x0240)	15:0	0x0093	cam_ll_nr_lut_1_k0 (R/W)
	AdaCD noise model parameter for a sensor gain of cam_ll_nr_lut_1_gain. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA44 VAR(0x12, 0x0244)	15:0	0x0160	cam_ll_nr_lut_2_gain (R/W)
	Sensor analog gain for look up table entry 2. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This is paired with cam_ll_nr_lut_2_sigma and cam_ll_nr_lut_2_k0. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xCA46 VAR(0x12, 0x0246)	15:0	0x0107	cam_ll_nr_lut_2_sigma (R/W)
	AdaCD noise floor parameter for a sensor gain of cam_ll_nr_lut_2_gain. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xCA48 VAR(0x12, 0x0248)	15:0	0x0093	cam_ll_nr_lut_2_k0 (R/W)
	AdaCD noise model parameter for a sensor gain of cam_ll_nr_lut_2_gain. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA4C VAR(0x12, 0x024C)	15:0	0x02C0	cam_ll_nr_lut_3_gain (R/W)
	Sensor analog gain for look up table entry 3. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This is paired with cam_ll_nr_lut_3_sigma and cam_ll_nr_lut_3_k0. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xCA4E VAR(0x12, 0x024E)	15:0	0x0105	cam_ll_nr_lut_3_sigma (R/W)
	AdaCD noise floor parameter for a sensor gain of cam_ll_nr_lut_3_gain. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This value is unsigned fixed−point with 5 fractional bits. Changes take effect during Vertical Blanking.		
0xCA50 VAR(0x12, 0x0250)	15:0	0x0093	cam_ll_nr_lut_3_k0 (R/W)
	AdaCD noise model parameter for a sensor gain of cam_ll_nr_lut_3_gain. This is a tuning parameter for the noise model used in the AdaCD adaptive noise reduction calculation. This value is unsigned fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA58 VAR(0x12, 0x0258)	15:0	0x0B00	cam_ll_ck_0_snr (R/W)
	Low SNR colorkill solution. This is the SNR metric (cam_ll_snr_metric) value used to generate the current colorkill solution (ll_ck_*). The current colorkill solution is interpolated from the table of colorkill solutions (cam_ll_ck_N*) in the CAM page. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA60 VAR(0x12, 0x0260)	15:0	0x0200	cam_ll_ck_0_chroma_gain_high (R/W)
	Low SNR colorkill solution. This is the high gain. The chroma gain applied to a pixel is determined from that pixels colorkill metric value. This value is unsigned fixed−point with 9 fractional bits. Changes take effect during Vertical Blanking.		
0xCA64 VAR(0x12, 0x0264)	15:0	0x0A00	cam_ll_ck_1_snr (R/W)
	Mid SNR colorkill solution. This is the SNR metric (cam_ll_snr_metric) value used to generate the current colorkill solution (ll_ck_*). The current colorkill solution is interpolated from the table of colorkill solutions (cam_ll_ck_N*) in the CAM page. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA6C VAR(0x12, 0x026C)	15:0	0x0200	cam_ll_ck_1_chroma_gain_high (R/W)
	Mid SNR colorkill solution. This is the high gain. This value is unsigned fixed−point with 9 fractional bits. Changes take effect during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA70 VAR(0x12, 0x0270)	**15:0**	**0x0066**	**cam_ll_ck_2_snr (R/W)**
	High SNR colorkill solution. This is the SNR metric (cam_ll_snr_metric) value used to generate the current colorkill solution (ll_ck_*). The current colorkill solution is interpolated from the table of colorkill solutions (cam_ll_ck_N*) in the CAM page. This value is signed 2's complement fixed−point with 8 fractional bits. Changes take effect during Vertical Blanking.		
0xCA80 VAR(0x12, 0x0280)	**15:0**	**0x0000**	**cam_pga_pga_control (R/W)**
	15:2	X	Reserved
	1	0x00	cam_pga_pga_adjust_center 0: Disable center adjustment. 1: Enable center adjustment. The firmware will adjust X/Y offset register settings (during a Change−Config) based on the cam_fov_calib_x_offset and cam_fov_calib_y_offset variable values. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x00	cam_pga_pga_enable 0: Disable PGA. 1: Enable PGA (assume coefficients pre−loaded). This value is unsigned. Changes take effect during Vertical Blanking.
	PGA control. This value is unsigned. Changes take effect after a Change−Config command.		
0xCA84 VAR(0x12, 0x0284)	**7:0**	**0x01**	**cam_sysctl_pll_control (R/W)**
	7:1	X	Reserved
	0	0x01	cam_sysctl_pll_enable 0: Disable and bypass the PLL 1: PLL will be enabled on next Change−Config. This value is unsigned. Changes take effect after a Change−Config command.
	PLL control. This value is unsigned. Changes take effect after a Change−Config command.		
0xCA88 VAR(0x12, 0x0288)	**15:0**	**0x0110**	**cam_sysctl_pll_divider_m_n_1_clk (R/W)**
	15:14	X	Reserved
	13:8	0x0001	cam_pll_divider_m_n_1_clk_pll_n The PLL's prescale N (reference) divider. This value is unsigned. Changes take effect after a Change−Config command.
	7:0	0x10	cam_pll_divider_m_n_1_clk_pll_m The PLL's VCO M (feedback) divider. This value is unsigned. Changes take effect after a Change−Config command.
	PLL multiplier/pre−divider settings. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA8C VAR(0x12, 0x028C)	**15:0**	**0x0033**	**cam_sysctl_pll_divider_p_1_clk (R/W)**
	15:8	X	Reserved
	7:4	0x03	cam_pll_divider_p_1_clk_pll_p2 The PLL's VCO P2 output divider, minus 1. The pixel clock is divided down from the VCO clock by the P2 divider. This value is unsigned. Changes take effect after a Change−Config command.
	3:0	0x03	cam_pll_divider_p_1_clk_pll_p1 The PLL's VCO P1 output divider, minus 1. The color pipe clock is divided down from the VCO clock by the P1 divider. This value is unsigned. Changes take effect after a Change−Config command.
	PLL post−dividers. This value is unsigned. Changes take effect after a Change−Config command.		
0xCA90 VAR(0x12, 0x0290)	**15:0**	**0x0500**	**cam_output_width (R/W)**
	The horizontal width (pixels) of the output window. This value is unsigned. Changes take effect after a Change−Config command.		
0xCA92 VAR(0x12, 0x0292)	**15:0**	**0x03C0**	**cam_output_height (R/W)**
	The vertical height (lines) of the output window. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA94 VAR(0x12, 0x0294)	**15:0**	**0x0010**	**cam_output_format_yuv (R/W)**
	15:11	X	Reserved
	10:9	0x0000	cam_output_format_yuv_scale_uv Decimate UV with: 0: no anti−aliasing 1: align with first Y 2: center between Y 3: reserved. This value is unsigned. Changes take effect after a Change−Config command.
	8	0x0000	cam_output_format_yuv_mono_enable Enable monochrome output. This value is unsigned. Changes take effect after a Change−Config command.
	7	0x00	cam_output_format_yuv_swap_red_blue Swap Cr/Cb channels. This value is unsigned. Changes take effect after a Change−Config command.
	6:5	0x00	cam_output_format_yuv_clip 0: No clipping; 1: Clip Y in 16−235, U and V in 16−240; 2: Clip to 1−254; 3: reserved. This value is unsigned. Changes take effect after a Change−Config command.
	4	0x01	cam_output_format_yuv_auv_offset Controls the U and V offset: 0: No offset. 1: Add 128 to U and V. This value is unsigned. Changes take effect after a Change−Config command.
	3	0x00	cam_output_format_yuv_select_601 YUV coefficients control: 0: YUV (BT−709). 1: YCbCr (BT−601). This value is unsigned. Changes take effect after a Change−Config command.
	2	0x00	cam_output_format_yuv_normalise Controls luma normalization: 0: No normalization. 1: Normalize Y to 16−235, U and V to 16−240. Note: cam_output_y_offset should be set to 16. This value is unsigned. Changes take effect after a Change−Config command.
	1:0	0x00	cam_output_format_yuv_sampling Select sampling mode for YUV: 0: Even UV. 1: Odd UV. 2: Even U, odd V. This value is unsigned. Changes take effect after a Change−Config command.
	Controls the YUV output format. Not used in interlaced−scan modes. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA96 VAR(0x12, 0x0296)	**7:0**	**0x00**	**cam_output_format (R/W)**
	Output format: 0: YUV. 1: Reserved. 2: Bayer. Not used in interlaced−scan modes. This value is unsigned. Changes take effect after a Change−Config command.		
0xCA97 VAR(0x12, 0x0297)	**7:0**	**0x00**	**cam_output_format_bayer_path (R/W)**
	Bayer format data path: 0: RAW sensor output. 1: DCNR output. 2: Reconstruct output. 3: ALTM output. This value is unsigned. Changes take effect after a Change−Config command.		
0xCA98 VAR(0x12, 0x0298)	**7:0**	**0x0C**	**cam_output_format_bayer_width (RO)**
	Read−only Bayer output bit width: 10, 12, or 20. This is determined by the camera mode and sensor configuration. This value is unsigned. Updates after a Change−Config command.		
0xCA99 VAR(0x12, 0x0299)	**7:0**	**0x00**	**cam_output_y_offset (R/W)**
	Y pedestal. This is not intended as a brightness control. In interlaced−scan modes, this variable is automatically initialized from ntsc_output_y_offset or pal_output_y_offset as appropriate. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCA9C VAR(0x12, 0x029C)	**15:0**	**0x0285**	**cam_port_parallel_control (R/W)**
	15:12	X	Reserved
	11:10	0x0000	cam_port_parallel_yuv_out_mode YUV output mode: 0: YUV16. 1: YUV8+8. 2: YUV10+10. 3: Reserved. This value is unsigned. Changes take effect after a Change−Config command.
	9	0x0001	cam_port_parallel_swap_bytes Swap output pixel high byte with low byte. This value is unsigned. Changes take effect after a Change−Config command.
	8	X	Reserved
	7	0x01	cam_port_parallel_msb_align Align MSB of output to DOUT15. This value is unsigned. Changes take effect after a Change−Config command.
	6	0x00	cam_port_parallel_pixclk_invert Invert output pixel clock. This value is unsigned. Changes take effect after a Change−Config command.
	5	X	Reserved
	4	0x00	cam_port_parallel_pixclk_gate_on Controls the pixel clock gating: 0: The pixel clock output (PIXCLK) is continuous. 1: The pixel clock output (PIXCLK) is only generated when FRAME_VALID and LINE_VALID are asserted. This value is unsigned. Changes take effect after a Change−Config command.
	3	X	Reserved
	2:1	0x02	cam_port_parallel_source Select the parallel output source: 0: Reserved. 1: Interlaced. 2: Progressive. 3: Reserved. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	cam_port_parallel_enable Enables the parallel port for data output: 0: Port disabled for data output. 1: Port enabled for data output. This value is unsigned. Changes take effect after a Change−Config command.
	Parallel port control flags. In interlaced−scan modes, this variable is automatically initialized from ntsc_port_parallel_control or pal_port_parallel_control as appropriate. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCAA0 VAR(0x12, 0x02A0)	**15:0**	**0x0000**	**cam_port_composite_control (RO)**
	15:3	X	Reserved
	2	RO	cam_port_composite_enable_pedestal Indicates the state of the composite pedestal control:
	1	RO	cam_port_composite_enable_bw Indicates the state of the composite monochrome control: 0: Color. 1: Monochrome. Only applicable to NTSC and PAL modes − use the equivalent control of the NTSC or PAL page as appropriate. This value is unsigned. Updates after a Change−Config command.
	0	RO	cam_port_composite_enable Indicates the state of the composite port: 0: Disabled. 1: Enabled. Only applicable to NTSC and PAL modes − use the equivalent control of the NTSC or PAL page as appropriate. This value is unsigned. Updates after a Change−Config command.
	Composite port status flags Note: Applicable only to NTSC and PAL modes − use the equivalent control on the NTSC or PAL page as appropriate. This value is unsigned. Updates after a Change−Config command.		
0xCAA8 VAR(0x12, 0x02A8)	**15:0**	**0x0001**	**cam_tempmon_tcontrol (R/W)**
	15:3	X	Reserved
	2	0x00	cam_tempmon_tcontrol_enable_low_threshold Enable low−temperature threshold check: 0: Threshold check disabled. 1: Threshold check enabled. This value is unsigned. Changes take effect after a Change−Config command.
	1	0x00	cam_tempmon_tcontrol_enable_high_threshold Enable high−temperature threshold check: 0: Threshold check disabled. 1: Threshold check enabled. This value is unsigned. Changes take effect after a Change−Config command.
	0	0x01	cam_tempmon_tcontrol_enable Enable Temperature Monitor: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect after a Change−Config command.
	Temperature Monitor control. This value is unsigned. Changes take effect after a Change−Config command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCAAA VAR(0x12, 0x02AA)	**15:0**	**0x0000**	**cam_tempmon_tstatus (RO)**
	15:11	X	Reserved
	10	RO	cam_tempmon_tstatus_normal_temp Indicator, normal temperature reached. This value is unsigned. Updates during Vertical Blanking.
	9	RO	cam_tempmon_tstatus_low_temp Low−temperature status: 0: Temperature is above the low threshold (cam_tempmon_low_threshold). 1: Temperature is below the low threshold. Note: There is an internal hysteresis gate; the low−temperature status will be set when the temperature is less than the low threshold minus the gate. The status will be cleared when the temperature is above the low threshold. This value is unsigned. Updates during Vertical Blanking.
	8	RO	cam_tempmon_tstatus_high_temp High−temperature status: 0: Temperature is below the high threshold (cam_tempmon_high_threshold). 1: Temperature is above the high threshold. Note: There is an internal hysteresis gate; the high−temperature status will be set when the temperature exceeds the high threshold plus the gate. The status will be cleared when the temperature is less than the high threshold. This value is unsigned. Updates during Vertical Blanking.
	7:3	X	Reserved
	2	RO	cam_tempmon_tstatus_enable_low_threshold Low−temperature threshold status: 0: Disabled. 1: Enabled. This value is unsigned. Updates during Vertical Blanking.
	1	RO	cam_tempmon_tstatus_enable_high_threshold High−temperature threshold status: 0: Disabled. 1: Enabled. This value is unsigned. Updates during Vertical Blanking.
	0	RO	cam_tempmon_tstatus_enable Enable status: 0: Disabled. 1: Enabled. This value is unsigned. Updates during Vertical Blanking.
	Temperature Monitor status: This value is unsigned. Updates during Vertical Blanking.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCAAC VAR(0x12, 0x02AC)	**7:0**	**0x10**	**cam_tempmon_damping_factor (R/W)**
	7:6	X	Reserved
	5:0	0x10	cam_tempmon_damp_factor Controls the damping applied to the current temperature: 0: Maximum damping. 32: No damping. This value is unsigned. Changes take effect during Vertical Blanking.
	Temperature damping control. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCAAD VAR(0x12, 0x02AD)	**7:0**	**0x46**	**cam_tempmon_high_threshold (R/W)**
	The high temperature threshold, in degrees Celsius. This value is signed 2's complement. Changes take effect during Vertical Blanking.		
0xCAAE VAR(0x12, 0x02AE)	**7:0**	**0x0A**	**cam_tempmon_low_threshold (R/W)**
	The low temperature threshold, in degrees Celsius. This value is signed 2's complement. Changes take effect during Vertical Blanking.		
0xCAAF VAR(0x12, 0x02AF)	**7:0**	**0x00**	**cam_tempmon_temperature (RO)**
	The current temperature (damped), in degrees Celsius. This value is signed 2's complement. Updates during Vertical Blanking.		
0xCAB0 VAR(0x12, 0x02B0)	**7:0**	**0x00**	**cam_tempmon_temperature_min (RO)**
	The minimum temperature recorded (degrees Celsius) since last enable. This value is signed 2's complement. Updates during Vertical Blanking.		
0xCAB1 VAR(0x12, 0x02B1)	**7:0**	**0x00**	**cam_tempmon_temperature_max (RO)**
	The maximum temperature recorded (degrees Celsius) since last enable. This value is signed 2's complement. Updates during Vertical Blanking.		
0xCAB4 VAR(0x12, 0x02B4)	**15:0**	**0x0001**	**cam_flicker_detect_fd_mode (R/W)**
	15:2	X	Reserved
	1	0x00	cam_flicker_detect_fd_auto_switch Auto−switch flicker avoidance period control: 0: Automatic switching disabled. 1: Enable automatic switching of the flicker period when a flicker source is detected in the scene (using an internal refresh command). When this option is enabled, cam_aet_flicker_freq_hz cannot be changed. This value is unsigned. Changes take effect after a Refresh command.
	0	0x01	cam_flicker_detect_fd_enable Enable flicker detection: 0: Disabled. 1: Enabled. This value is unsigned. Changes take effect after a Refresh command.
	Flicker detection mode control. This value is unsigned. Changes take effect after a Refresh command.		

Table 48. CAMCONTROL VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCAB8 VAR(0x12, 0x02B8)	**15:0**	**0x0001**	**cam_adaptation_ta_mode (R/W)**
	15:1	X	Reserved
	0	0x01	cam_adaptation_tempadapt_enable If enabled, AE auto adjusts the maximum sensor gain during high temperatures. This value is unsigned. Changes take effect during Vertical Blanking.
	Camera Adaptation mode control flags. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCABC VAR(0x12, 0x02BC)	**15:0**	**0x0002**	**cam_sensor_control2_hispi (R/W)**
	15:2	X	Reserved
	1:0	0x02	cam_sensor_control2_hispi_transfer_mode Selects HiSPi transfer mode: 0: Streaming S. 1: Streaming SP. 2: Packetized SP. 3: Active SP8. This value is unsigned. Changes take effect after a Change−Config command.
	HiSpi controls. This value is unsigned. Changes take effect after a Change−Config command.		

Sensor Manager Variable Descriptions

Table 49. SENSOR MANAGER VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCC00 VAR(0x13, 0x0000)	**15:0**	**0x0000**	**sensor_mgr_status (RO)**
	15:7	X	Reserved
	6	RO	Reserved
	5	RO	sensor_mgr_sensor_standby Indicates if the sensor is in standby. This value is unsigned. Updates during Vertical Blanking.
	4	X	Reserved
	3	RO	sensor_mgr_sensor_streaming Indicates if the sensor is streaming This value is unsigned. Updates during Vertical Blanking.
	2	RO	sensor_mgr_sensor_initialized Indicates if the sensor has been initialized successfully. This value is unsigned. Updates during Vertical Blanking.
	1:0	RO	Reserved
	Sensor Manager status flags. This value is unsigned. Updates after a Change−Config command.		

Table 49. SENSOR MANAGER VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xCC02 VAR(0x13, 0x0002)	**15:0**	**0x0003**	**sensor_mgr_mode (R/W)**
	15:7	X	Reserved
	6	0x00	Reserved
	5	0x00	Reserved
	4	0x00	sensor_mgr_sensor_default_sequencer_load_inhibit Inhibits the automatic load of the sensor's default Dynamic Sequencer during sensor initialization: 0: Automatic load enabled. 1: Automatic load disabled − user is responsible for loading Dynamic Sequencer either via CCI or from NVM. This value is unsigned. Changes take effect immediately (unsynchronized).
	3:2	X	Reserved
	1	0x01	Reserved
	0	0x01	Reserved
	Sensor Manager mode control flags. This value is unsigned. Changes take effect during Vertical Blanking.		
0xCCB2 VAR(0x13, 0x00B2)	**15:0**	**0x0000**	**sensor_mgr_min_manual_gain (RO)**
	Minimum gain when using manual exposure (unity=128). This value is unsigned fixed−point with 7 fractional bits. Updates after a Change−Config command.		
0xCCB4 VAR(0x13, 0x00B4)	**15:0**	**0x0000**	**sensor_mgr_max_manual_gain (RO)**
	Maximum gain when using manual exposure (unity=128). This value is unsigned fixed−point with 7 fractional bits. Updates after a Change−Config command.		
0xCCB6 VAR(0x13, 0x00B6)	**15:0**	**0x0000**	**sensor_mgr_min_manual_it_ms (RO)**
	Minimum integration time when using manual exposure (unity=128). This value is unsigned fixed−point with 7 fractional bits. Updates after a Change−Config command.		
0xCCB8 VAR(0x13, 0x00B8)	**15:0**	**0x0000**	**sensor_mgr_max_manual_it_ms (RO)**
	Maximum integration time when using manual exposure (unity=128). This value is unsigned fixed−point with 7 fractional bits. Updates after a Change−Config command.		

System Manager Variable Descriptions

Table 50. SYSTEM MANAGER VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xDC00 VAR(0x17, 0x0000)	**15:0**	**0x0000**	**sysmgr_status (RO)**
	15:13	X	Reserved
	12	RO	sysmgr_status_system_config_failed When set, indicates that the System Configuration phase failed and was aborted. The sysmgr_otpm_config_status and sysmgr_flash_config_status variables should be used to determine the reason−code. The sysmgr_otpm_status_table_id and sysmgr_flash_status_table_id respectively will indicate which table was being processed when the abort occurred. This value is unsigned. Updates immediately (unsynchronized).
	11	RO	sysmgr_status_config_change_active When set, indicates that a Change−Config operation is in−progress. This value is unsigned. Updates after a Change−Config command.
	10	RO	Reserved
	9	RO	sysmgr_status_host_has_ccim_lock When set, indicates that the host has obtained the CCIM lock. This value is unsigned. Updates immediately (unsynchronized).
	8:7	X	Reserved
	6	RO	sysmgr_status_hard_standby_enabled When set, indicates the STANDBY pin can be used to select hard−standby. This value is unsigned. Updates immediately (unsynchronized).
	5	RO	sysmgr_status_config_change_complete When set, indicates that a Change−Config operation has completed successfully. This value is unsigned. Updates immediately (unsynchronized).
	4	RO	sysmgr_status_system_config_complete When set, indicates that the System Configuration phase has completed. This value is unsigned. Updates immediately (unsynchronized).
	3	X	Reserved
	2	RO	sysmgr_status_flash_config_active When set, indicates that Flash/EEPROM records are being located and processed during the System Configuration phase. This value is unsigned. Updates immediately (unsynchronized).
	1	RO	Reserved
	0	RO	sysmgr_status_state_change_active When set, indicates that a system state change is in progress. This value is unsigned. Updates immediately (unsynchronized).
	System Manager status flags. This value is unsigned. Updates immediately (unsynchronized).		

Table 50. SYSTEM MANAGER VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xDC07 VAR(0x17, 0x0007)	**7:0**	**0x00**	**sysmgr_config_mode (R/W)**
	Controls the operation of the System Configuration phase. The System Configuration phase is recursive, in that the System Manager may use the value of this variable multiple times during the phase. On the completion of each sub−phase, the System Manager tests this variable again to determine the next action. Valid values are: 0: Reserved. 1: FLASH: the firmware will detect the presence of an SPI Flash or EEPROM device. If a device is present, the firmware will locate and process the records contained within it. 2: AUTO−CONFIG: the firmware will automatically configure the device for interlaced operation (NTSC or PAL), and enable the composite port. The configuration is controlled by the state of the auto−config GPIO inputs, sampled immediately following reset. 3: HOST: the firmware enters a quiescent state, waiting for the Host to configure the device using the two−wire serial interface. 4: CHANGE−CONFIG: the firmware performs a Change−Config operation (applies the current configuration to the sensor and AP0100 hardware) which will start streaming. 5: CONFIG−COMPLETE: indicates the completion of the System Configuration phase. The firmware enters a quiescent state, waiting for the Host to configure the device using the two−wire serial interface. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xDC09 VAR(0x17, 0x0009)	**7:0**	**0x00**	**sysmgr_flash_config_status (RO)**
	Indicates the status of the Flash−Config state (SPI Flash/EEPROM processing) during the System Configuration phase. Value is a Result Status code, where: 0: ENOERR: indicates Flash−Config was successful. 1: ENOENT: indicates no valid TOC detected within Flash/EEPROM. 11: ENODEV: no Flash/EEPROM device detected. 2.10/12.16: error occurred, EEPROM/Flash processing was aborted. This value is unsigned. Updates immediately (unsynchronized).		
0xDC0A VAR(0x17, 0x000A)	**7:0**	**0x00**	**sysmgr_cmd_status (RO)**
	Result status code for last SYSMGR_SET_STATE command. The permitted codes (per command) are detailed in the Host Command Interface specification. This value is unsigned. Updates immediately (unsynchronized).		
0xDC0B VAR(0x17, 0x000B)	**7:0**	**0x00**	**sysmgr_cmd_comp_id (RO)**
	Identifies the component which rejected the last state−change. The component identifiers are detailed in the Host Command Interface specification. This value is unsigned. Updates immediately (unsynchronized).		
0xDC0C VAR(0x17, 0x000C)	**15:0**	**0x0000**	**sysmgr_cmd_comp_failure_id (RO)**
	Component−specific failure reason−code. The component failure reason−codes are detailed in the Host Command Interface specification. This value is unsigned. Updates immediately (unsynchronized).		
0xDC1E VAR(0x17, 0x001E)	**7:0**	**0x00**	**sysmgr_config_flash_status_table_id (RO)**
	Indicates which Init Table caused the System Configuration phase to be aborted when processing SPI NVM records: 0: Init Table. 1: Calib Table. 2: Patch Init Table. 3: STE Init Table. 4: Overlay Init Table. This value is unsigned. Updates immediately (unsynchronized).		

Patch Loader Variable Descriptions

Table 51. PATCH LOADER VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xE000 VAR(0x18, 0x0000)	**15:0**	**0x0000**	**patchldr_load_address (R/W)**
	Indicates the load address (base address) in patch RAM of the patch to be applied. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xE002 VAR(0x18, 0x0002)	**15:0**	**0x0000**	**patchldr_size_bytes (R/W)**
	Indicates the size of the patch to be applied. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xE004 VAR(0x18, 0x0004)	**15:0**	**0x0000**	**patchldr_loader_address (R/W)**
	Indicates the address of the loader function (patch entry point) in patch RAM of the patch to be applied. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xE006 VAR(0x18, 0x0006)	**15:0**	**0x0000**	**patchldr_patch_id (R/W)**
	Unique identifier of the patch to be applied. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xE008 VAR(0x18, 0x0008)	**31:0**	**0x00000000**	**patchldr_firmware_id (R/W)**
	Identifies the firmware version for which the patch to be applied was built. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xE00C VAR(0x18, 0x000C)	**7:0**	**0x00**	**patchldr_apply_status (RO)**
	Result Status code for last PATCHLDR_APPLY_PATCH command. Possible status codes are: 0: ENOERR: patch applied successfully. 5: EBADF: bad patch format, cannot be applied. This value is unsigned. Updates immediately (unsynchronized).		
0xE00D VAR(0x18, 0x000D)	**7:0**	**0x00**	**patchldr_num_patches (RO)**
	Indicates the number of patches that have been successfully loaded and applied using either the PATCHLDR_APPLY_PATCH command, or the PATCHLDR_LOAD_PATCH command (from NVM). This value is unsigned. Updates immediately (unsynchronized).		
0xE00E VAR(0x18, 0x000E)	**15:0**	**0x0000**	**patchldr_patch_id_0 (RO)**
	Indicates the first patch that has been applied. Note: If more than eight patches have been applied, this variable will indicate the ninth, or seventeenth, and so on. This value is unsigned. Updates immediately (unsynchronized).		
0xE010 VAR(0x18, 0x0010)	**15:0**	**0x0000**	**patchldr_patch_id_1 (RO)**
	Indicates the second patch that has been applied. Note: If more than eight patches have been applied, this variable will indicate the tenth, or eighteenth, and so on. This value is unsigned. Updates immediately (unsynchronized).		
0xE012 VAR(0x18, 0x0012)	**15:0**	**0x0000**	**patchldr_patch_id_2 (RO)**
	Indicates the third patch that has been applied. Note: If more than eight patches have been applied, this variable will indicate the eleventh, or nineteenth, and so on. This value is unsigned. Updates immediately (unsynchronized).		
0xE014 VAR(0x18, 0x0014)	**15:0**	**0x0000**	**patchldr_patch_id_3 (RO)**
	Indicates the fourth patch that has been applied. Note: If more than eight patches have been applied, this variable will indicate the twelfth, or twentieth, and so on. This value is unsigned. Updates immediately (unsynchronized).		

Table 51. PATCH LOADER VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xE016 VAR(0x18, 0x0016)	15:0	0x0000	patchldr_patch_id_4 (RO)
	Indicates the fifth patch that has been applied. Note: If more than eight patches have been applied, this variable will indicate the thirteenth, or twenty−first, and so on. This value is unsigned. Updates immediately (unsynchronized).		
0xE018 VAR(0x18, 0x0018)	15:0	0x0000	patchldr_patch_id_5 (RO)
	Indicates the sixth patch that has been applied. Note: If more than eight patches have been applied, this variable will indicate the fourteenth, or twenty−second, and soon. This value is unsigned. Updates immediately (unsynchronized).		
0xE01A VAR(0x18, 0x001A)	15:0	0x0000	patchldr_patch_id_6 (RO)
	Indicates the seventh patch that has been applied. Note: If more than eight patches have been applied, this variable will indicate the fifteenth, or twenty−third, and so on. This value is unsigned. Updates immediately (unsynchronized).		
0xE01C VAR(0x18, 0x001C)	15:0	0x0000	patchldr_patch_id_7 (RO)
	Indicates the eighth patch that has been applied. Note: If more than eight patches have been applied, this variable will indicate the sixteenth, or twenty−fourth and so on. This value is unsigned. Updates immediately (unsynchronized).		

Command Handler Variable Descriptions

Table 52. COMMAND HANDLER VARIABLE DESCRIPTIONS
R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xFC00 VAR(0x1F, 0x0000)	15:0	0x0000	cmd_handler_params_pool_0 (R/W)
	Host command parameter word 0. The variables cmd_handler_params_pool_0 through cmd_handler_params_pool_7 implement a contiguous buffer for HOST command parameters and command results. The values in these variables are ignored until a valid command is written into the COMMAND_REGISTER. Refer to the AP0100 Host Command Specification for the use of these variables. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xFC02 VAR(0x1F, 0x0002)	15:0	0x0000	cmd_handler_params_pool_1 (R/W)
	Host command parameter word 1. The variables cmd_handler_params_pool_0 through cmd_handler_params_pool_7 implement a contiguous buffer for HOST command parameters and command results. The values in these variables are ignored until a valid command is written into the COMMAND_REGISTER. Refer to the AP0100 Host Command Specification for the use of these variables. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xFC04 VAR(0x1F, 0x0004)	15:0	0x0000	cmd_handler_params_pool_2 (R/W)
	Host command parameter word 2. The variables cmd_handler_params_pool_0 through cmd_handler_params_pool_7 implement a contiguous buffer for HOST command parameters and command results. The values in these variables are ignored until a valid command is written into the COMMAND_REGISTER. Refer to the AP0100 Host Command Specification for the use of these variables. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xFC06 VAR(0x1F, 0x0006)	15:0	0x0000	cmd_handler_params_pool_3 (R/W)
	Host command parameter word 3. The variables cmd_handler_params_pool_0 through cmd_handler_params_pool_7 implement a contiguous buffer for HOST command parameters and command results. The values in these variables are ignored until a valid command is written into the COMMAND_REGISTER. Refer to the AP0100 Host Command Specification for the use of these variables. This value is unsigned. Changes take effect immediately (unsynchronized).		

Table 52. COMMAND HANDLER VARIABLE DESCRIPTIONS

R/W (Read or Write) bit; RO (Read Only) bit

Register Dec(Hex)	Bits	Default	Name
0xFC08 VAR(0x1F, 0x0008)	15:0	0x0000	cmd_handler_params_pool_4 (R/W)
	Host command parameter word 4. The variables cmd_handler_params_pool_0 through cmd_handler_params_pool_7 implement a contiguous buffer for HOST command parameters and command results. The values in these variables are ignored until a valid command is written into the COMMAND_REGISTER. Refer to the AP0100 Host Command Specification for the use of these variables. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xFC0A VAR(0x1F, 0x000A)	15:0	0x0000	cmd_handler_params_pool_5 (R/W)
	Host command parameter word 5. The variables cmd_handler_params_pool_0 through cmd_handler_params_pool_7 implement a contiguous buffer for HOST command parameters and command results. The values in these variables are ignored until a valid command is written into the COMMAND_REGISTER. Refer to the AP0100 Host Command Specification for the use of these variables. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xFC0C VAR(0x1F, 0x000C)	15:0	0x0000	cmd_handler_params_pool_6 (R/W)
	Host command parameter word 6. The variables cmd_handler_params_pool_0 through cmd_handler_params_pool_7 implement a contiguous buffer for HOST command parameters and command results. The values in these variables are ignored until a valid command is written into the COMMAND_REGISTER. Refer to the AP0100 Host Command Specification for the use of these variables. This value is unsigned. Changes take effect immediately (unsynchronized).		
0xFC0E VAR(0x1F, 0x000E)	15:0	0x0000	cmd_handler_params_pool_7 (R/W)
	Host command parameter word 7. The variables cmd_handler_params_pool_0 through cmd_handler_params_pool_7 implement a contiguous buffer for HOST command parameters and command results. The values in these variables are ignored until a valid command is written into the COMMAND_REGISTER. Refer to the AP0100 Host Command Specification for the use of these variables. This value is unsigned. Changes take effect immediately (unsynchronized).		

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