FLIR BOSON SOFTWARE IDD <9Hz

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1 Boson SDK Description

1.1 Global Objects

1.1.1 Basic Data Types

SDK Name	C	C#	Python
CHAR	"int8_t"	"SByte"	"int"
UCHAR	"uint8_t"	"Byte"	"int"
INT_16	"int16_t"	"Int16"	"int"
UINT_16	"uint16_t"	"UInt16"	"int"
INT_32	"int32_t"	"Int32"	"int"
UINT_32	"uint32_t"	"UInt32"	"int"
FLOAT	"float"	"Double"	"float"
DOUBLE	"double"	"Double"	"float"

1.1.2 Enums

Global Enumerations are available to all modules.

1.1.2.1 FLR_ENABLE_E — <INT_32>

FLR_DISABLE = 0
FLR_ENABLE = 1
FLR_ENABLE_END = 2

1.1.3 Functions

1.1.3.1 Initialize()

Starts communications and returns handle.

1.1.3.2 Close(handle)

Stops communications and releases handle.

1.2 Module: GAO

No description provided.

1.2.1 Enums

No enumerations in module gao.

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1.2.2 Structs

No struct types in module gao.

1.2.3 Functions

1.2.3.1 gaoSetGainState()

Enables / disables application of per-pixel gain coefficients. When disabled, unity gain is applied to all pixels. Most users should leave this enabled.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000001	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.2.3.2 gaoGetGainState()

Reads the state (enabled/disabled) of per-pixel gain coefficients.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.2.3.3 gaoSetFfcState()

Enables / disables application of per-pixel Flat-Field Correction (FFC) coefficients. Most users should leave this enabled.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000003	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.2.3.4 gaoGetFfcState()

Reads the state (enabled/disabled) of per-pixel FFC coefficients.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.2.3.5 gaoSetTempCorrectionState()

Enables / disables application of per-pixel temperature corrections. Additionaly, controls application of Row Noise algorithm (if available).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000005	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.2.3.6 gaoGetTempCorrectionState()

Reads the state (enabled/disabled) of per-pixel temperature corrections and (if available) row noise corrections.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000006	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.2.3.7 gaoSetIConstL()

Writes the value of a global offset. Most users should leave this at the default value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000007	N/A	N/A	N/A
data	INT_16	0:2	N/A	N/A

No output parameters.

1.2.3.8 gaoGetIConstL()

Reads the value of a global offset. Most users should leave this at the default value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000008	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	INT_16	0:2	N/A	N/A

1.2.3.9 gaoSetIConstM()

Writes the value of a second global offset. Most users should leave this at the default value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000009	N/A	N/A	N/A
data	INT_16	0:2	N/A	N/A

No output parameters.

1.2.3.10   gaoGetIConstM()

Reads the value of a second global offset. Most users should leave this at the default value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0000000A	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	INT_16	0:2	N/A	N/A

1.2.3.11 gaoSetAveragerState()

Enables / disables a smart-averager function which cuts frame rate in half.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0000000B	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.2.3.12 gaoGetAveragerState()

Reads the state (enabled/disabled) of the smart-averager function.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0000000C	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.2.3.13 gaoSetNumFFCFrames()

Specifies the number of frames (2, 4, 8, or 16) to be integrated during flat-field correction (FFC).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0000000D	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.2.3.14 gaoGetNumFFCFrames()

Reads the number of frames to be integrated during FFC.

Input/Send parameters:

Name	DataType	Bytes	Min	Max

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FunctionID	0x0000000E	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.2.3.15 gaoGetRnsState()

Reads the availability (enabled/disabled) of a row-noise suppression (RNS) algorithm. This algorithm is linked to the TempCorrection enable.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000012	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.2.3.16 gaoSetTestRampState()

Enables / disables a test ramp generated by internal electronics (in lieu of data from the sensor array). Most users should leave this disabled as it is intended primarily as a diagnostic feature.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000013	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.2.3.17 gaoGetTestRampState()

Reads the state (enabled/disabled) of a test ramp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00000014	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.3 Module: ROIC

No description provided.

1.3.1 Enums

1.3.1.1 FLR_ROIC_TEMP_MODE_E — <INT_32>

FLR_ROIC_TEMP_NORMAL_MODE = 0
FLR_ROIC_TEMP_OFFSET_MODE = 1
FLR_ROIC_TEMP_STATIC_MODE = 2
FLR_ROIC_TEMP_MODE_END = 3

1.3.2 Structs

1.3.2.1 FLR_ROIC_FPATEMP_TABLE_T

Field Name	DataType	Bytes
value	INT_16*32	64

1.3.3 Functions

1.3.3.1 roicGetFPATemp()

Reads the raw (uncorrected) output of the on-chip temperature sensor. Note: A different command, bosonlookupFPATempDegCx10, provides the calibrated output in degrees Celsius, and bosonlookupFPATempDegKx10 provides the output in Kelvin.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020001	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

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1.3.3.2 roicGetFrameCount()

Reads the value of a frame counter which increments by one for each new frame.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

1.3.3.3 roicGetActiveNormalizationTarget()

Gets the normalization target for the active pixels for the currently loaded table. The normalization target is the nominal expected output of the camera immediately after FFC (non-radiometric) when imaging the FFC source.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020006	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.3.3.4 roicSetFPARampState()

Enables / disables a test ramp generated by the sensor array. Most users should leave this disabled as it is intended primarily as a diagnostic feature.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020014	N/A	N/A	N/A
state	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.3.3.5 roicGetFPARampState()

Gets the state of the sensor array ramp.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020015	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
state	FLR_ENABLE_E	0:4	N/A	N/A

1.3.3.6 roicGetSensorADC1()

Reads the value of an internal analog-to-digital convertor. This internal ADC is not currently used.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020019	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.3.3.7 roicGetSensorADC2()

Reads the value of an internal analog-to-digital convertor. This internal ADC is not currently used.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0002001A	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.3.3.8 roicSetFPATempOffset()

Specifies an override of or an offset applied to the camera's internal temperature sensor, intended primarily as a diagnostic feature. Only has effect in two of the three FPA Temp modes (see roicSetFPATempMode)

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0002001B	N/A	N/A	N/A
data	INT_16	0:2	N/A	N/A

No output parameters.

1.3.3.9 roicGetFPATempOffset()

Reads the value of an override / offset value applied to the camera's internal temperature sensor.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0002001C	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	INT_16	0:2	N/A	N/A

1.3.3.10   roicSetFPATempMode()

Specifies the FPA temp mode (normal, fixed/override, or offset). Fixed/override and offset modes are intended primarily as diagnostic features, and most customers should leave this in its default state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0002001D	N/A	N/A	N/A
data	FLR_ROIC_TEMP_MODE_E	0:4	N/A	N/A

No output parameters.

1.3.3.11   roicGetFPATempMode()

Reads the FPA temp mode (normal, fixed/override, or offset).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0002001E	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ROIC_TEMP_MODE_E	0:4	N/A	N/A

1.3.3.12 roicGetFPATempTable()

Reads the look-up table used internally for conversion of the raw output of the camera's internal temp sensor into a calibrated value (deg C or Kelvin).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020020	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
table	FLR_ROIC_FPATEMP_TABLE_T	0:64	N/A	N/A

1.3.3.13 roicSetFPATempValue()

Sets the value of the FPA temp when the FPA temp mode is set to fixed.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020022	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.3.3.14 roicGetFPATempValue()

Gets the value of the FPA Temp when the FPA temp mode is set to fixed. Alternately, in this mode roicGetFPATemp returns the same value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00020023	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

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1.4 Module: BPR

No description provided.

1.4.1 Enums

No enumerations in module bpr.

1.4.2 Structs

No struct types in module bpr.

1.4.3 Functions

1.4.3.1 bprSetState()

Enables / disables the bad-pixel replace (BPR) algorithm.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00030002	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.4.3.2 bprGetState()

Reads the state (enabled/disabled) of the bad-pixel replace (BPR) algorithm.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00030001	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.5 Module: TELEMETRY

Boson provides the option to enable a single line of telemetry as either the first or last line in each frame. The telemetry line contains metadata describing the image stream and the camera. A complete list of the telemetry-line contents is provided in the Appendix <?>. All

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telemetry is aligned to 16-bit fields. If CMOS is configured for 8-bit output, only the 8 LSBs will be provided. If CMOS is configured to 24bit output, telemetry data will be provided via cmos_data[0:15].

1.5.1 Enums

1.5.1.1 FLR_TELEMETRY_LOC_E — <INT_32>

FLR_TELEMETRY_LOC_TOP = 0
FLR_TELEMETRY_LOC_BOTTOM = 1
FLR_TELEMETRY_LOC_END = 2

1.5.2 Structs

No struct types in module telemetry.

1.5.3 Functions

1.5.3.1 telemetrySetState()

Set the telemetry state to Enabled or Disabled.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00040001	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.5.3.2 telemetryGetState()

Return the current telemetry state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00040002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.5.3.3 telemetrySetLocation()

Set the telemetry to before(top) or after(bottom) the image.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00040003	N/A	N/A	N/A
data	FLR_TELEMETRY_LOC_E	0:4	N/A	N/A

No output parameters.

1.5.3.4 *telemetryGetLocation()*

Return the current telemetry location.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00040004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_TELEMETRY_LOC_E	0:4	N/A	N/A

1.6 Module: BOSON

Functions to control the general operation of the Boson camera.

1.6.1 Enums

1.6.1.1 *FLR_BOSON_GAINMODE_E — <INT_32>*

FLR_BOSON_HIGH_GAIN = 0
FLR_BOSON_LOW_GAIN = 1
FLR_BOSON_AUTO_GAIN = 2
FLR_BOSON_DUAL_GAIN = 3
FLR_BOSON_MANUAL_GAIN = 4
FLR_BOSON_GAINMODE_END = 5

1.6.1.2 *FLR_BOSON_FFCMODE_E — <INT_32>*

FLR_BOSON_MANUAL_FFC = 0
FLR_BOSON_AUTO_FFC = 1
FLR_BOSON_EXTERNAL_FFC = 2
FLR_BOSON_SHUTTER_TEST_FFC = 3
FLR_BOSON_FFCMODE_END = 4

1.6.1.3 FLR_BOSON_FFCSTATUS_E — <INT_32>

FLR_BOSON_NO_FFC_PERFORMED = 0
FLR_BOSON_FFC_IMMINENT = 1
FLR_BOSON_FFC_IN_PROGRESS = 2
FLR_BOSON_FFC_COMPLETE = 3
FLR_BOSON_FFCSTATUS_END = 4

1.6.2 Structs

1.6.2.1 FLR_BOSON_PARTNUMBER_T

Field Name	DataType	Bytes
value	UCHAR*20	20

1.6.2.2 FLR_BOSON_SENSOR_PARTNUMBER_T

Field Name	DataType	Bytes
value	UCHAR*32	32

1.6.2.3 FLR_BOSON_GAIN_SWITCH_PARAMS_T

Field Name	DataType	Bytes
pHighToLowPercent	UINT_32	4
cHighToLowPercent	UINT_32	4
pLowToHighPercent	UINT_32	4
hysteresisPercent	UINT_32	4

1.6.3 Functions

1.6.3.1 bosonGetCameraSN()

Returns the camera's serial number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

1.6.3.2 bosonGetCameraPN()

Returns the camera's part number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_BOSON_PARTNUMBER_T	0:20	N/A	N/A

1.6.3.3 bosonGetSensorSN()

Returns the sensor's serial number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050006	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

1.6.3.4 bosonRunFFC()

Performs an FFC operation.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050007	N/A	N/A	N/A

No output parameters.

1.6.3.5 bosonSetFFCTempThreshold()

Sets the temperature threshold (in degC*10) for the FFC desired flag. If the camera is in Auto FFC mode, an FFC desired flag will result in an automatic FFC event.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050008	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.6.3.6 bosonGetFFCTempThreshold()

Gets the temperature threshold (in degC*10) for the FFC desired flag.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050009	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.6.3.7 bosonSetFFCFrameThreshold()

Sets the time threshold (in seconds) for the FFC desired flag. If the camera is in Auto FFC mode, an FFC desired flag will result in an automatic FFC event.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005000A	N/A	N/A	N/A
data	UINT_32	0:4	N/A	N/A

No output parameters.

1.6.3.8 bosonGetFFCFrameThreshold()

Gets the time threshold (in seconds) for the FFC desired flag.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005000B	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

1.6.3.9 bosonGetFFCInProgress()

Gets the mode of the FFC state machine.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005000C	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	INT_16	0:2	N/A	N/A

1.6.3.10 bosonReboot()

Tells the camera to perform a reboot.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050010	N/A	N/A	N/A

No output parameters.

1.6.3.11 bosonSetFFCMode()

Sets the mode of the camera's FFC operation.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050012	N/A	N/A	N/A
ffcMode	FLR_BOSON_FFCMODE_E	0:4	N/A	N/A

No output parameters.

1.6.3.12 bosonGetFFCMode()

Gets the mode of the camera's FFC operation.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050013	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
ffcMode	FLR_BOSON_FFCMODE_E	0:4	N/A	N/A

1.6.3.13 bosonSetGainMode()

Sets the mode of the camera's temperature compensation operation.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050014	N/A	N/A	N/A
gainMode	FLR_BOSON_GAINMODE_E	0:4	N/A	N/A

No output parameters.

1.6.3.14 bosonGetGainMode()

Gets the mode of the camera's temperature compensation operation.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050015	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
gainMode	FLR_BOSON_GAINMODE_E	0:4	N/A	N/A

1.6.3.15 bosonWriteDynamicHeaderToFlash()

Takes the current settings of the camera and stores them to the Dynamic header, part of the non-volatile flash for User settings, to be used at start-up.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050018	N/A	N/A	N/A

No output parameters.

1.6.3.16 bosonReadDynamicHeaderFromFlash()

Reads the settings stored in Dynamic header and writes them over the current values in use.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050019	N/A	N/A	N/A

No output parameters.

1.6.3.17 bosonRestoreFactoryDefaultsFromFlash()

Reads the settings stored in Factory header and writes them over the current values in use.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005001B	N/A	N/A	N/A

No output parameters.

1.6.3.18 bosonRestoreFactoryBadPixelsFromFlash()

Reads the bad pixels stores in the Factory Bad Pixel map and writes them over the current bap pixel map in use.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050020	N/A	N/A	N/A

No output parameters.

1.6.3.19 bosonWriteBadPixelsToFlash()

Writes the current bad pixel and vector offsets in use to the User Bad Pixel portion of the non-volatile flash.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050021	N/A	N/A	N/A

No output parameters.

1.6.3.20 bosonGetSoftwareRev()

Returns the version of the Camera Software.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050022	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
major	UINT_32	0:4	N/A	N/A
minor	UINT_32	4:8	N/A	N/A
patch	UINT_32	8:12	N/A	N/A

1.6.3.21 bosonSetBadPixelLocation()

Mark a pixel location as bad, for replacement by the Bad Pixel Replacement module.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005002D	N/A	N/A	N/A
row	UINT_32	0:4	N/A	N/A
col	UINT_32	4:8	N/A	N/A

No output parameters.

1.6.3.22 bosonlookupFPATempDegCx10()

Returns the camera's sensor temp in degrees Celcius x10.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050030	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	INT_16	0:2	N/A	N/A

1.6.3.23 bosonlookupFPATempDegKx10()

Returns the camera's sensor temp in degrees Kelvin x10.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050031	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.6.3.24 bosonWriteLensGainToFlash()

Writes the current Lens Gain map to flash.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050035	N/A	N/A	N/A

No output parameters.

1.6.3.25 bosonSetLensNumber()

Sers the desired lens number

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050038	N/A	N/A	N/A
lensNumber	UINT_32	0:4	N/A	N/A

No output parameters.

1.6.3.26 bosonGetLensNumber()

Returns the current lens number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050039	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
lensNumber	UINT_32	0:4	N/A	N/A

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1.6.3.27   bosonSetTableNumber()

Sets the desired table number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005003A	N/A	N/A	N/A
tableNumber	UINT_32	0:4	N/A	N/A

No output parameters.

1.6.3.28   bosonGetTableNumber()

Returns the current table number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005003B	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
tableNumber	UINT_32	0:4	N/A	N/A

1.6.3.29   bosonGetSensorPN()

Returns the sensor's part number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005003F	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
sensorPN	FLR_BOSON_SENSOR_PARTNUMBER_T	0:32	N/A	N/A

1.6.3.30   bosonSetGainSwitchParams()

Sets the parameters for the auto gain switching.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050040	N/A	N/A	N/A
parm_struct	FLR_BOSON_GAIN_SWITCH_PARAMS_T	0:16	N/A	N/A

No output parameters.

1.6.3.31   bosonGetGainSwitchParams()

Gets the parameters for the auto gain switching.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050041	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
parm_struct	FLR_BOSON_GAIN_SWITCH_PARAMS_T	0:16	N/A	N/A

1.6.3.32   bosonGetSwitchToHighGainFlag()

Gets the status of the SwitchToHighGain flag.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050042	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
switchToHighGainFlag	UCHAR	0:1	N/A	N/A

1.6.3.33   bosonGetSwitchToLowGainFlag()

Gets the status of the SwitchToLowGain flag.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050043	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
switchToLowGainFlag	UCHAR	0:1	N/A	N/A

1.6.3.34 bosonGetCLowToHighPercent()

Gets the calculated percent counts for the transition from low gain to high gain state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050044	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
cLowToHighPercent	UINT_32	0:4	N/A	N/A

1.6.3.35 bosonGetMaxNUCTables()

Returns the number of the highest Gain table.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050045	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
maxNUCTables	UINT_32	0:4	N/A	N/A

1.6.3.36 bosonGetMaxLensTables()

Returns the number of Lens tables the camera supports.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050046	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
maxLensTables	UINT_32	0:4	N/A	N/A

1.6.3.37 bosonGetFfcWaitCloseFrames()

Gets number of frames to wait for the shutter to close during an Auto or Manual FFC.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005004E	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.6.3.38 bosonSetFfcWaitCloseFrames()

Sets number of frames to wait for the shutter to close during an Auto or Manual FFC.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0005004F	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.6.3.39 bosonCheckForTableSwitch()

Performs table switch if camera's "Table Switch Desired" flag has been set.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050050	N/A	N/A	N/A

No output parameters.

1.6.3.40 bosonGetDesiredTableNumber()

Gets the table number that the camera wants to switch to.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050052	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
desiredTableNumber	UINT_32	0:4	N/A	N/A

1.6.3.41   bosonGetFfcStatus()

Gets the status of the FFC function - FLR_BOSON_NO_FFC_PERFORMED, FLR_BOSON_FFC_IMMINENT, FLR_BOSON_FFC_IN_PROGRESS , FLR_BOSON_FFC_COMPLETE

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050054	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
ffcStatus	FLR_BOSON_FFCSTATUS_E	0:4	N/A	N/A

1.6.3.42   bosonGetFfcDesired()

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050055	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
ffcDesired	UINT_32	0:4	N/A	N/A

1.6.3.43   bosonGetSwRevInHeader()

No description provided.

Input/Send parameters:

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Name	DataType	Bytes	Min	Max
FunctionID	0x00050056	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
major	UINT_32	0:4	N/A	N/A
minor	UINT_32	4:8	N/A	N/A
patch	UINT_32	8:12	N/A	N/A

1.7 Module: DVO

No description provided.

1.7.1 Enums

1.7.1.1 FLR_DVO_OUTPUT_FORMAT_E — <INT_32>

FLR_DVO_RGB = 0
FLR_DVO_YCBCR = 1
FLR_DVO_DEFAULT_FORMAT = 2
FLR_DVO_OUTPUT_FORMAT_END = 3

1.7.1.2 FLR_DVO_OUTPUT_RGB_FORMAT_E — <INT_32>

FLR_DVO_RGB888 = 0
FLR_DVO_MRGB888 = 1
FLR_DVO_OUTPUT_RGB_FORMAT_END = 2

1.7.1.3 FLR_DVO_OUTPUT_YCBCR_FORMAT_E — <INT_32>

FLR_DVO_YCBCR422_8B = 0
FLR_DVO_MYCBCR422_8B = 1
FLR_DVO_OUTPUT_YCBCR_FORMAT_END = 2

1.7.1.4 FLR_DVO_OUTPUT_CBCR_ORDER_E — <INT_32>

FLR_DVO_CRCB = 0
FLR_DVO_CBCR = 1
FLR_DVO_OUTPUT_CBCR_ORDER_END = 2

1.7.1.5 FLR_DVO_OUTPUT_Y_ORDER_E — <INT_32>

FLR_DVO_YFIRST = 0
FLR_DVO_YLAST = 1
FLR_DVO_OUTPUT_Y_ORDER_END = 2

1.7.1.6 FLR_DVO_OUTPUT_RGB_ORDER_E — <INT_32>

FLR_DVO_ORDER_RGB = 0
FLR_DVO_ORDER_BGR = 1
FLR_DVO_OUTPUT_RGB_ORDER_END = 2

1.7.1.7 FLR_DVO_TYPE_E — <INT_32>

FLR_DVO_TYPE_MONO16 = 0
FLR_DVO_TYPE_MONO8 = 1
FLR_DVO_TYPE_COLOR = 2
FLR_DVO_TYPE_ANALOG = 3
FLR_DVO_TYPE_END = 4

1.7.1.8 FLR_DVO_DISPLAY_MODE_E — <INT_32>

FLR_DVO_CONTINUOUS = 0
FLR_DVO_ONE_SHOT = 1
FLR_DVO_DISPLAY_MODE_END = 2

1.7.2 Structs

1.7.2.1 FLR_DVO_YCBCR_SETTINGS_T

Field Name	DataType	Bytes
ycbcrFormat	FLR_DVO_OUTPUT_YCBCR_FORMAT_E	4
cbcrOrder	FLR_DVO_OUTPUT_CBCR_ORDER_E	4
yOrder	FLR_DVO_OUTPUT_Y_ORDER_E	4

1.7.2.2 FLR_DVO_RGB_SETTINGS_T

Field Name	DataType	Bytes
rgbFormat	FLR_DVO_OUTPUT_RGB_FORMAT_E	4
rgbOrder	FLR_DVO_OUTPUT_RGB_ORDER_E	4

1.7.3 Functions

1.7.3.1 dvoSetAnalogVideoState()

Sets the state of analog video

Input/Send parameters:

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Name	DataType	Bytes	Min	Max
FunctionID	0x00060004	N/A	N/A	N/A
analogVideoState	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.7.3.2 dvoGetAnalogVideoState()

Gets the state of analog video

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00060005	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
analogVideoState	FLR_ENABLE_E	0:4	N/A	N/A

1.7.3.3 dvoSetOutputFormat()

Sets the output format for the lcd output. In order to apply these settings, dvoApplyCustomSettings function needs to be called.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00060006	N/A	N/A	N/A
format	FLR_DVO_OUTPUT_FORMAT_E	0:4	N/A	N/A

No output parameters.

1.7.3.4 dvoGetOutputFormat()

Gets the output format for the lcd output

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00060007	N/A	N/A	N/A

Output/Receive parameters:

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Name	DataType	Bytes	Min	Max
format	FLR_DVO_OUTPUT_FORMAT_E	0:4	N/A	N/A

1.7.3.5 dvoSetOutputYCbCrSettings()

Sets the YCBCR mode, Y order and CB/CR order. In order to apply these settings, dvoApplyCustomSettings function needs to be called.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00060008	N/A	N/A	N/A
settings	FLR_DVO_YCBCR_SETTINGS_T	0:12	N/A	N/A

No output parameters.

1.7.3.6 dvoGetOutputYCbCrSettings()

Gets the YCBCR settings

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00060009	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
settings	FLR_DVO_YCBCR_SETTINGS_T	0:12	N/A	N/A

1.7.3.7 dvoSetOutputRGBSettings()

Sets the RGB mode and RGB order. In order to apply these settings, dvoApplyCustomSettings function needs to be called.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0006000A	N/A	N/A	N/A
settings	FLR_DVO_RGB_SETTINGS_T	0:8	N/A	N/A

No output parameters.

1.7.3.8 dvoGetOutputRGBSettings()

Gets the RGB settings

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0006000B	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
settings	FLR_DVO_RGB_SETTINGS_T	0:8	N/A	N/A

1.7.3.9 dvoApplyCustomSettings()

Applies the settings set by dvoSetOutputFormat, dvoSetOutputYCbCrSettings and dvoSetOutputRGBSettings. If FLR_DVO_DEFAULT_FORMAT is chosen, this function applies the default lcd settings for the selected source. If FLR_DVO_YCBCR is set then the settings set by dvoSetOutputYCbCrSettings are applied and if FLR_DVO_RGB is selected, the settings set by dvoSetOutputRGBSettings are applied to the lcd output format.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0006000C	N/A	N/A	N/A

No output parameters.

1.7.3.10 dvoSetDisplayMode()

Sets the display mode to continuous or one shot

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0006000D	N/A	N/A	N/A
displayMode	FLR_DVO_DISPLAY_MODE_E	0:4	N/A	N/A

No output parameters.

1.7.3.11 dvoGetDisplayMode()

Gets the display mode

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0006000E	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
displayMode	FLR_DVO_DISPLAY_MODE_E	0:4	N/A	N/A

1.7.3.12 dvoSetType()

Sets the tap at which the DVO source points to

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0006000F	N/A	N/A	N/A
tap	FLR_DVO_TYPE_E	0:4	N/A	N/A

No output parameters.

1.7.3.13 dvoGetType()

Gets the tap at which the DVO source is pointing to

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00060010	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
tap	FLR_DVO_TYPE_E	0:4	N/A	N/A

1.8 Module: CAPTURE

This set of controls is used to capture one or more video frames to Boson's internal memory. These captured frames are stored in DRAM and will be erased when the camera reboots or loses power.

1.8.1 Enums

No enumerations in module capture.

1.8.2 Structs

No struct types in module capture.

1.8.3 Functions

1.8.3.1 captureSingleFrame()

Capture a single frame from the GAO module output to capture slot 0.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00070001	N/A	N/A	N/A

No output parameters.

1.9 Module: SCNR

Spatial Column Noise Reduction settings

1.9.1 Enums

No enumerations in module scnr.

1.9.2 Structs

No struct types in module scnr.

1.9.3 Functions

1.9.3.1 scnrSetEnableState()

Enable or disable Spatial Column Noise Reduction (scnr).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080001	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.9.3.2 scnrGetEnableState()

Get scnr correction's current state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.9.3.3 scnrSetThColSum()

Set the threshold that determines if a column should increment or decrement by 1.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080003	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.9.3.4 scnrGetThColSum()

Get the current value of ThColSum.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.9.3.5 scnrSetThPixel()

Set the (base) threshold that determines if a neighboring pixel is within range to affect the correction of the center.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080005	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.9.3.6 scnrGetThPixel()

Get the current (base) value of ThPixel.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080006	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.9.3.7 scnrSetMaxCorr()

Set the (base) maximum correction amount that will be applied.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080007	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.9.3.8 scnrGetMaxCorr()

Get the (base) maximum correction.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080008	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.9.3.9 scnrGetThPixelApplied()

Get the current (scaled with temperature) value of ThPixel.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0008000A	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.9.3.10   scnrGetMaxCorrApplied()

Get the (scaled with temperature) maximum correction.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0008000B	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.9.3.11   scnrSetThColSumSafe()

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0008000C	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.9.3.12   scnrGetThColSumSafe()

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0008000D	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max

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| data | UINT_16 | 0:2 | N/A | N/A |

1.9.3.13   scnrSetThPixelSafe()

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0008000E	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.9.3.14   scnrGetThPixelSafe()

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0008000F	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.9.3.15   scnrSetMaxCorrSafe()

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00080010	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.9.3.16   scnrGetMaxCorrSafe()

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max

FunctionID	0x00080011	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.10 Module: AGC

No description provided.

1.10.1   Enums

No enumerations in module agc.

1.10.2   Structs

1.10.2.1 FLR_AGC_ROI_T

Field Name	DataType	Bytes
rowStart	UINT_16	2
rowStop	UINT_16	2
colStart	UINT_16	2
colStop	UINT_16	2

1.10.3   Functions

1.10.3.1 agcSetPercentPerBin()

Defines thet maximum percentage of pixels allowed in a bin in relation to the total number of pixels accumulated.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090001	N/A	N/A	N/A
data	FLOAT	0:4	0	100

No output parameters.

1.10.3.2 agcGetPercentPerBin()

Get the current PercentPerBin

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.3   agcSetLinearPercent()

Defines how linear the mapping from the input to output dynamic range will be. The valid range of the variable is [0 100] where a value of 0 (%) means the transfer function shape will be based entirely on the input histogram and a value of 100 (%) means the transfer function will be a straight line (linear).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090003	N/A	N/A	N/A
data	FLOAT	0:4	0	100

No output parameters.

1.10.3.4   agcGetLinearPercent()

Get the current setting for transfer function linearity.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.5   agcSetOutlierCut()

Defines the amount of histogram "outliers" (beginning and end) to ignore as a percentage of histSum. A non-zero value for this parameter will limit the effect of outlier pixel values such as non-operational pixels or small areas with extremely high values (high irradiance) or low values (low irradiance).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090005	N/A	N/A	N/A
data	FLOAT	0:4	0	49

No output parameters.

1.10.3.6 agcGetOutlierCut()

Get the outlier cut

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090006	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.7 agcGetDrOut()

Get the current dynamic range setting.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090008	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.8 agcSetMaxGain()

Set the maximum transfer function gain. This gain limit is applied on a per bin basis such that locally the transfer function slope never exceeds the limit defined by the maxGain parameter.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090009	N/A	N/A	N/A

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data	FLOAT	0:4	0.25	8

No output parameters.

1.10.3.9   agcGetMaxGain()

Get the current maximum gain of the transfer function.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0009000A	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.10 agcSetdf()

Set the damping factor. This controls the update rate of the transfer function per function call. The damping factor has a valid range of [0 1] where a value of 0 means there is no damping and the latest calculated transfer function will the output transfer function and a value of 1.0 for df will freeze the update of the transfer function (i.e. 100% damped).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0009000B	N/A	N/A	N/A
data	FLOAT	0:4	0	100

No output parameters.

1.10.3.11 agcGetdf()

Get the current damping factor.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0009000C	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

Information on this page is subject to change without notice

1.10.3.12 agcSetGamma()

Set the gamma correction value. This parameter can be used to compensate for the gamma of the display. In this implementation gamma<1 will generate a transfer function that has more contrast in the high irradiance range. Negative values for gamma are not allowed.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0009000D	N/A	N/A	N/A
data	FLOAT	0:4	0.5	4

No output parameters.

1.10.3.13 agcGetGamma()

Get the current gamma correction value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0009000E	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.14 agcGetFirstBin()

Get the index of the first populated bin in the histogram (starting form bin 0). If outlierCut is set to a value greater than zero firstBin may not be the first bin containing non-zero value (see outlierCut).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090010	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

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1.10.3.15 agcGetLastBin()

Get the index of the last populated bin in the histogram (starting form bin 0). If outlierCut is set to a value greater than zero lastBin may not be the last bin containing a non-zero value (see outlierCut).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090012	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

1.10.3.16 agcSetDetailHeadroom()

Set the amount of headroom to be given to the detail component when DDE is enabled and has a non-zero gain. If this parameter is set to zero: positive valued detail signals (HP signal) in the highest irradiance regions of the image may saturate at the drOut level and negative valued detail signals in the lowest irradiance regions may saturate at 0. The allowed range for this parameter is [0 drOut-1] with a typical value of 10.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090013	N/A	N/A	N/A
data	FLOAT	0:4	0	127

No output parameters.

1.10.3.17 agcGetDetailHeadroom()

Get the current Detail Headroom

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090014	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

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1.10.3.18 agcSetd2br()

Set the detail-to-background-ratio (d2br). This defines the ratio of the detail (HP) gain and the maximum slope/gain of the background (LP). The allowable range for this parameter is [0 inf] with a typical setting of 1.3.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090015	N/A	N/A	N/A
data	FLOAT	0:4	0.0	8

No output parameters.

1.10.3.19 agcGetd2br()

Get the current detail-to-background-ratio (d2br).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090016	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.20 agcSetSigmaR()

Set the smoothing factor. This defines the properties of the edge-preserving low pass filter used for the DDE functionality. Higher values for this parameter will result in more aggressive low pass filtering which will cause higher amplitude signals to be present in the detail (HP) component. Allowable range is [0 inf] with a typical setting of 2000. Value should be proportional to imager responsivity.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090017	N/A	N/A	N/A
data	FLOAT	0:4	1	100000

No output parameters.

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1.10.3.21 agcGetSigmaR()

Get the current smoothing factor.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090018	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.22 agcSetUseEntropy()

Switches from Plateau Equalization to Entropy Equalization

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0009001E	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.10.3.23 agcGetUseEntropy()

Get the Entropy State of AGC

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x0009001F	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.10.3.24 agcSetROI()

Define the current region of interest. Set the start and stop columns and rows, starting with column=0, row=0 in the upper left corner.

Input/Send parameters:

Name	DataType	Bytes	Min	Max

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FunctionID	0x00090020	N/A	N/A	N/A
roi	FLR_AGC_ROI_T	0:8	N/A	N/A

No output parameters.

1.10.3.25 agcGetROI()

Get the current boundaries of the ROI.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090021	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
roi	FLR_AGC_ROI_T	0:8	N/A	N/A

1.10.3.26 agcGetMaxGainApplied()

Gets the scaled value of the max gain

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090025	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

1.10.3.27 agcGetSigmaRApplied()

Gets the scaled value of sigma R

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00090026	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLOAT	0:4	N/A	N/A

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1.11   Module: TF

No description provided.

1.11.1   Enums

1.11.1.1 FLR_TF_MOTION_MODE_E — <INT_32>

FLR_TF_MOTION_MODE_FRAME_BASED = 0
FLR_TF_MOTION_MODE_MOTION_BASED = 1
FLR_TF_MOTION_MODE_END = 2

1.11.2   Structs

1.11.2.1 FLR_TF_WLUT_T

Field Name	DataType	Bytes
value	UCHAR*32	32

1.11.2.2 FLR_TF_NF_LUT_T

Field Name	DataType	Bytes
value	UINT_16*17	34

1.11.3   Functions

1.11.3.1 tfSetEnableState()

Enable or disable Temporal Noise Reduction (tnr)

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0001	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.11.3.2 tfGetEnableState()

Get Temporal Noise Reduction (tnr) correction's current enable state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0002	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.11.3.3 tfSetDelta_nf()

Sets the Delta NF value. The delta_nf modifies the filter behavior by scaling the index into the table of weights (wLUT)

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0003	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

No output parameters.

1.11.3.4 tfGetDelta_nf()

Gets the Delta NF value. The delta_nf modifies the filter behavior by scaling the index into the table of weights (wLUT)

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.11.3.5 tfSetTHDeltaMotion()

Sets the Delta Motion threshold. . The Delta Motion specifies a threshold to determine if there was motion in the scene enough to trigger the SPNR algorithm

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0005	N/A	N/A	N/A
data	UINT_16	0:2	N/A	N/A

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No output parameters.

1.11.3.6 tfGetTHDeltaMotion()

Gets the Delta Motion threshold. . The Delta Motion specifies a threshold to determine if there was motion in the scene enough to trigger the SPNR algorithm

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0006	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.11.3.7 tfSetWLut()

Sets the values in the Table of Weights - (wLUT) . The weight table specifies the ration of the averaging of the current with the previous frame.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0007	N/A	N/A	N/A
data	FLR_TF_WLUT_T	0:32	N/A	N/A

No output parameters.

1.11.3.8 tfGetWLut()

Gets the values in the Table of Weights - (wLUT) . The weight table specifies the ration of the averaging of the current with the previous frame.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0008	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_TF_WLUT_T	0:32	N/A	N/A

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1.11.3.9 tfGetMotionCount()

Gets the current motion count from the camera. The motion count is the number of pixels in the image that is classified as have moved from the previous frame

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0009	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

1.11.3.10 tfSetMotionThreshold()

Sets the motion detection threshold. If the number of pixels in a frame detected as having moved exceeds this threshold, the frame is considered to have motion and can trigger SPNR to execute.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A000E	N/A	N/A	N/A
data	UINT_32	0:4	N/A	N/A

No output parameters.

1.11.3.11 tfGetMotionThreshold()

Gets the motion detection threshold. If the number of pixels in a frame detected as having moved exceeds this threshold, the frame is considered to have motion and can trigger SPNR to execute.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A000F	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

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1.11.3.12 tfSetNfLut()

Note: Change with caution.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0014	N/A	N/A	N/A
data	FLR_TF_NF_LUT_T	0:34	N/A	N/A

No output parameters.

1.11.3.13 tfGetNfLut()

Note: Change with caution.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0015	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_TF_NF_LUT_T	0:34	N/A	N/A

1.11.3.14 tfGetDelta_nfApplied()

Returns the actual Delta NF applied in the algorithm after parameter scaling

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0016	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.11.3.15 tfGetTHDeltaMotionApplied()

Returns the actual Delta motion applied in the algorithm after parameter scaling

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000A0017	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_16	0:2	N/A	N/A

1.12   Module: MEM

Tools for byte level access to volatile and persistent memory objects.

1.12.1   Enums

1.12.1.1 FLR_MEM_LOCATION_E — <INT_32>

FLR_MEM_INVALID = 0
FLR_MEM_BOOTLOADER = 1
FLR_MEM_UPGRADE_APP = 2
FLR_MEM_LENS_NVFFC = 3
FLR_MEM_LENS_SFFC = 4
FLR_MEM_LENS_GAIN = 5
FLR_MEM_LENS_DISTORTION = 6
FLR_MEM_USER_SPACE = 7
FLR_MEM_RUN_CMDS = 8
FLR_MEM_LAST = 9

1.12.2   Structs

No struct types in module mem.

1.12.3   Functions

1.12.3.1 memReadCapture()

Read bytes from the selected image buffer at the specified offset.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0xFFFF0003	N/A	N/A	N/A
bufferNum	UCHAR	0:1	N/A	N/A
offset	UINT_32	1:5	N/A	N/A
sizeInBytes	UINT_16	5:7	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max

data	BYTEARRAY	0:512	N/A	N/A

1.12.3.2 memGetCaptureSize()

Get the size of the buffer in bytes, as well as the number of rows and columns in each capture buffer.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0xFFFF0004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
bytes	UINT_32	0:4	N/A	N/A
rows	UINT_16	4:6	N/A	N/A
columns	UINT_16	6:8	N/A	N/A

1.12.3.3 memWriteFlash()

Write bytes to the selected Flash enum at the specified offset. Lens enums require an additional index parameter, other enums must set this parameter to 0.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0xFFFF0005	N/A	N/A	N/A
location	FLR_MEM_LOCATION_E	0:4	N/A	N/A
index	UCHAR	4:5	N/A	N/A
offset	UINT_32	5:9	N/A	N/A
sizeInBytes	UINT_16	9:11	N/A	N/A
data	BYTEARRAY	11:267	N/A	N/A

No output parameters.

1.12.3.4 memReadFlash()

Read bytes from the selected Flash enum at the specified offset. Lens enums require an additional index parameter, other enums must set this parameter to 0.

Input/Send parameters:

Name	DataType	Bytes	Min	Max

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FunctionID	0xFFFF0006	N/A	N/A	N/A
location	FLR_MEM_LOCATION_E	0:4	N/A	N/A
index	UCHAR	4:5	N/A	N/A
offset	UINT_32	5:9	N/A	N/A
sizeInBytes	UINT_16	9:11	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	BYTEARRAY	0:512	N/A	N/A

1.12.3.5 memGetFlashSize()

Get the size of a specified Flash enum in bytes.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0xFFFF0007	N/A	N/A	N/A
location	FLR_MEM_LOCATION_E	0:4	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
bytes	UINT_32	0:4	N/A	N/A

1.12.3.6 memEraseFlash()

Prepare the specified Flash location for writing. Lens enums require an additional index parameter, other enums must set this parameter to 0.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0xFFFF0008	N/A	N/A	N/A
location	FLR_MEM_LOCATION_E	0:4	N/A	N/A
index	UCHAR	4:5	N/A	N/A

No output parameters.

1.12.3.7 memEraseFlashPartial()

Prepare subsections of the specified Flash location for writing. Flash erases must start and end on a multiple of 0x1000.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0xFFFF0009	N/A	N/A	N/A
location	FLR_MEM_LOCATION_E	0:4	N/A	N/A
index	UCHAR	4:5	N/A	N/A
offset	UINT_32	5:9	N/A	N/A
length	UINT_32	9:13	N/A	N/A

No output parameters.

1.13   Module: COLORLUT

This module is used to control which (if any) false color mode is applied to the 8-bit video output.

1.13.1   Enums

1.13.1.1 FLR_COLORLUT_ID_E — <INT_32>

FLR_COLORLUT_DEFAULT = 0
FLR_COLORLUT_WHITEHOT = 0
FLR_COLORLUT_0 = 0
FLR_COLORLUT_1 = 1
FLR_COLORLUT_BLACKHOT = 1
FLR_COLORLUT_RAINBOW = 2
FLR_COLORLUT_2 = 2
FLR_COLORLUT_3 = 3
FLR_COLORLUT_RAINBOW_HC = 3
FLR_COLORLUT_4 = 4
FLR_COLORLUT_IRONBOW = 4
FLR_COLORLUT_LAVA = 5
FLR_COLORLUT_5 = 5
FLR_COLORLUT_6 = 6
FLR_COLORLUT_ARCTIC = 6
FLR_COLORLUT_7 = 7
FLR_COLORLUT_GLOBOW = 7
FLR_COLORLUT_8 = 8
FLR_COLORLUT_GRADEDFIRE = 8
FLR_COLORLUT_9 = 9
FLR_COLORLUT_HOTTEST = 9
FLR_COLORLUT_ID_END = 10

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1.13.2 Structs

No struct types in module colorLut.

1.13.3 Functions

1.13.3.1 colorLutSetControl()

Set the current enable state of the colorize module.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000B0001	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.13.3.2 colorLutGetControl()

Get the current enable state of the colorize module.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000B0002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.13.3.3 colorLutSetId()

Set the current color palette, by ID.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000B0003	N/A	N/A	N/A
data	FLR_COLORLUT_ID_E	0:4	N/A	N/A

No output parameters.

1.13.3.4 colorLutGetId()

Get the current color palette ID.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000B0004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_COLORLUT_ID_E	0:4	N/A	N/A

1.14 Module: SPNR

Functions for controlling Spatial Pattern Noise Reduction (SPNR) correction.

1.14.1 Enums

1.14.1.1 FLR_SPNR_STATE_E — <INT_32>

FLR_SPNR_READY = 0
FLR_SPNR_DESIRED = 1
FLR_SPNR_IN_PROGRESS = 2
FLR_SPNR_COMPLETE = 3

1.14.1.2 FLR_SPNR_ONESHOT_STATE_E — <INT_32>

FLR_SPNR_ONE_SHOT_READY = 0
FLR_SPNR_ONE_SHOT_EXECUTE = 1
FLR_SPNR_ONE_SHOT_RESET = 2
FLR_SPNR_ONE_SHOT_INIT = 3

1.14.2 Structs

1.14.2.1 FLR_SPNR_PSD_KERNEL_T

Field Name	DataType	Bytes
fvalue	FLOAT*64	256

1.14.3 Functions

1.14.3.1 spnrSetEnableState()

Enable or Disable SPNR corrections.

Input/Send parameters:

Name	DataType	Bytes	Min	Max

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FunctionID	0x000C0001	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.14.3.2   spnrGetEnableState()

Get current SPNR correction enable state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.14.3.3   spnrGetState()

Get current SPNR execution state - FLR_SPNR_READY, FLR_SPNR_DESIRED, FLR_SPNR_IN_PROGRESS or FLR_SPNR_COMPLETE.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_SPNR_STATE_E	0:4	N/A	N/A

1.14.3.4   spnrSetFrameDelay()

Sets the frame delay parameter. This determines how many frames it takes between SPNR iterations. Note: Change value with caution.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0005	N/A	N/A	N/A
data	UINT_32	0:4	N/A	N/A

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No output parameters.

1.14.3.5   spnrGetFrameDelay()

Gets the SPNR frame delay parameter.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0006	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UINT_32	0:4	N/A	N/A

1.14.3.6   spnrGetSFApplied()

Get the currently applied Scale Factor.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0015	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
sf	FLOAT	0:4	N/A	N/A

1.14.3.7   spnrSetPSDKernel()

Sets the PSD kernel. This is power spectral density of the noise. Note: Change value with caution.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C001A	N/A	N/A	N/A
data	FLR_SPNR_PSD_KERNEL_T	0:256	N/A	N/A

No output parameters.

1.14.3.8   spnrGetPSDKernel()

Gets the PSD kernel.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C001B	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_SPNR_PSD_KERNEL_T	0:256	N/A	N/A

1.14.3.9 spnrSetSFMin()

Set the minimum Scale Factor ("SF") value, used when there is no scene motion. Scale Factor controls how aggressively the image is corrected.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C001C	N/A	N/A	N/A
sfmin	FLOAT	0:4	N/A	N/A

No output parameters.

1.14.3.10 spnrGetSFMin()

Get the current minimum Scale Factor value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C001D	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
sfmin	FLOAT	0:4	N/A	N/A

1.14.3.11 spnrSetSFMax()

Set the maximum Scale Factor ("SF") value used when there is much scene motion. Scale Factor controls how aggressively the image is corrected.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C001E	N/A	N/A	N/A

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Name	DataType	Bytes	Min	Max
sfmax	FLOAT	0:4	N/A	N/A

No output parameters.

1.14.3.12 spnrGetSFMax()

Get the current maximum Scale Factor value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C001F	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
sfmax	FLOAT	0:4	N/A	N/A

1.14.3.13 spnrSetDFMin()

Set the minimum Damping Factor ("DF") value, used when there is much scene motion.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0020	N/A	N/A	N/A
dfmin	FLOAT	0:4	N/A	N/A

No output parameters.

1.14.3.14 spnrGetDFMin()

Get the current minimum Damping Factor value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0021	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
dfmin	FLOAT	0:4	N/A	N/A

1.14.3.15 spnrSetDFMax()

Set the maximum Damping Factor ("DF") value, used when there is no scene motion.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0022	N/A	N/A	N/A
dfmax	FLOAT	0:4	N/A	N/A

No output parameters.

1.14.3.16 spnrGetDFMax()

Get the current maximum Damping Factor value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0023	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
dfmax	FLOAT	0:4	N/A	N/A

1.14.3.17 spnrSetNormTarget()

Set the NormTarget, which adjusts how sensitive SPNR is to motion.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0024	N/A	N/A	N/A
normTarget	FLOAT	0:4	N/A	N/A

No output parameters.

1.14.3.18 spnrGetNormTarget()

Get the current NormTarget.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000C0025	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max

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normTarget	FLOAT	0:4	N/A	N/A

1.15 Module: SCALER

This module is used to control eZoom functionality.

1.15.1 Enums

No enumerations in module scaler.

1.15.2 Structs

1.15.2.1 FLR_SCALER_ZOOM_PARAMS_T

Field Name	DataType	Bytes
zoom	UINT_32	4
xCenter	UINT_32	4
yCenter	UINT_32	4

1.15.3 Functions

1.15.3.1 scalerGetMaxZoom()

Get the maximum scaling factor allowed by the current camera configuration.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000D0001	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
zoom	UINT_32	0:4	N/A	N/A

1.15.3.2 scalerSetZoom()

Set the current zoom parameters.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000D0002	N/A	N/A	N/A

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Name	DataType	Bytes	Min	Max
zoomPara ms	FLR_SCALER_ZOOM_PARAMS_T	0:12	N/A	N/A

No output parameters.

1.15.3.3 scalerGetZoom()

Get the current zoom parameters.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000D0003	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
zoomPara ms	FLR_SCALER_ZOOM_PARAMS_T	0:12	N/A	N/A

1.16 Module: SYSCTRL

General Pipeline controls

1.16.1 Enums

No enumerations in module sysctrl.

1.16.2 Structs

No struct types in module sysctrl.

1.16.3 Functions

1.16.3.1 sysctrlSetFreezeState()

Sets the state of the pipeline freeze parameter (enable/disable)

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000E0001	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

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1.16.3.2 sysctrlGetFreezeState()

Gets the state of the pipeline freeze parameter (enable/disable)

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000E0002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.16.3.3 sysctrlGetCameraFrameRate()

Get the framerate of the camera in frames per second (60/30 or 9).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x000E0007	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
frameRate	UINT_32	0:4	N/A	N/A

1.17 Module: TESTRAMP

The test ramp can be used to replace the live video feed for calibration and error checking of the camera. The actual enable switch is located in the GAO module.

1.17.1   Enums

1.17.1.1 FLR_TESTRAMP_TYPE_E — <INT_32>

FLR_TESTRAMP_ZERO = 0
FLR_TESTRAMP_INCREMENTING = 1
FLR_TESTRAMP_VERT_SHADE = 2
FLR_TESTRAMP_HORIZ_SHADE = 3
FLR_TESTRAMP_BIG_VERT_SHADE = 4
FLR_TESTRAMP_SIMPLE_VERTICAL = 5
FLR_TESTRAMP_VTST_CHECKERBOARD = 6
FLR_TESTRAMP_VTST_DIAGONAL_STRIPE = 7

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1.17.2   Structs

1.17.2.1 FLR_TESTRAMP_SETTINGS_T

Field Name	DataType	Bytes
start	UINT_16	2
end	UINT_16	2
increment	UINT_16	2

1.17.3   Functions

1.17.3.1 testRampSetType()

Set the selected test ramp buffer to one of the pre-configured patterns. The simulated video frame is redrawn on set.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100000	N/A	N/A	N/A
index	UCHAR	0:1	N/A	N/A
data	FLR_TESTRAMP_TYPE_E	1:5	N/A	N/A

No output parameters.

1.17.3.2 testRampGetType()

Get the selected test ramp buffer's current pattern type.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100001	N/A	N/A	N/A
index	UCHAR	0:1	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_TESTRAMP_TYPE_E	0:4	N/A	N/A

1.17.3.3 testRampSetSettings()

Change the selected buffer's ramp settings. The buffer is redrawn on set. At present, the "Incrementing" pattern is the only configurable ramp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100002	N/A	N/A	N/A
index	UCHAR	0:1	N/A	N/A
data	FLR_TESTRAMP_SETTINGS_T	1:7	N/A	N/A

No output parameters.

1.17.3.4 testRampGetSettings()

Get the selected test ramp buffer's current ramp settings.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100003	N/A	N/A	N/A
index	UCHAR	0:1	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_TESTRAMP_SETTINGS_T	0:6	N/A	N/A

1.17.3.5 testRampSetMotionState()

Enable or disable looping through the test ramp buffers. If the Boson is configured with more than one test ramp: the video will display each ramp buffer once, then repeat.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100004	N/A	N/A	N/A
data	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

1.17.3.6 testRampGetMotionState()

Determine whether the test ramp is in motion or still mode.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100005	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	FLR_ENABLE_E	0:4	N/A	N/A

1.17.3.7 testRampSetIndex()

Display the selected ramp buffer on the next frame.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100006	N/A	N/A	N/A
data	UCHAR	0:1	N/A	N/A

No output parameters.

1.17.3.8 testRampGetIndex()

Get the ramp buffer index that will be displayed on the next frame.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100007	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UCHAR	0:1	N/A	N/A

1.17.3.9 testRampGetMaxIndex()

Determine the last valid index for a ramp buffer. MaxIndex=1 or two buffers is the default configuration.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00100008	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
data	UCHAR	0:1	N/A	N/A