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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(port, baudrate=921600)

Starts communications and returns handle. Argument port may be "COM<N>" or <N-1> depending on platform. Baudrate is 921600 for Boson.

##### 1.1.3.2 Close(handle)

Stops communications and releases handle.

### 1.2 Module: GAO

No description provided.

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## 1.2.1 Enums

No enumerations in module gao.

## 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
<b>FunctionID</b>	0x00000001	N/A	N/A	N/A
<b>data</b>	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
<b>FunctionID</b>	0x00000002	N/A	N/A	N/A

Output/Receive parameters:

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

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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
<b>FunctionID</b>	0x00000004	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.2.3.5 *gaoSetTempCorrectionState()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00000005	N/A	N/A	N/A
<b>data</b>	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
<b>FunctionID</b>	0x00000006	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.2.3.7 *gaoSetlConstL()*

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00000007	N/A	N/A	N/A
<b>data</b>	INT_16	0:2	N/A	N/A

No output parameters.

## 1.2.3.8 *gaoGetlConstL()*

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00000008	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>data</b>	INT_16	0:2	N/A	N/A

## 1.2.3.9 *gaoSetlConstM()*

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00000009	N/A	N/A	N/A
<b>data</b>	INT_16	0:2	N/A	N/A

No output parameters.

## 1.2.3.10 *gaoGetlConstM()*

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0000000A	N/A	N/A	N/A

Output/Receive parameters:

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Name	DataType	Bytes	Min	Max
<b>data</b>	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
<b>FunctionID</b>	0x0000000B	N/A	N/A	N/A
<b>data</b>	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
<b>FunctionID</b>	0x0000000C	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>data</b>	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
<b>FunctionID</b>	0x0000000D	N/A	N/A	N/A
<b>data</b>	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.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0000000E	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.2.3.15 *gaoGetAveragerThreshold()*

Reads the threshold value used by the smart-averager function.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00000010	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.2.3.16 *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
<b>FunctionID</b>	0x00000012	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.2.3.17 *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.

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Input/Send parameters:

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

No output parameters.

#### 1.2.3.18 *gaoGetTestRampState()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00000014	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.2.3.19 *gaoSetSffcState()*

Enables / disables supplemental flat-field correction (SFFC)

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00000017	N/A	N/A	N/A
<b>data</b>	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

#### 1.2.3.20 *gaoGetSffcState()*

Reads the state (enabled/disabled) of the supplemental flat-field correction.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00000018	N/A	N/A	N/A

Output/Receive parameters:

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

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## 1.2.3.21 *gaoSetRpmState()*

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00000019	N/A	N/A	N/A
<b>data</b>	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

## 1.2.3.22 *gaoGetRpmState()*

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0000001A	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.2.3.23 *gaoGetRpmThreshold()*

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0000001C	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>threshold</b>	UINT_16	0:2	N/A	N/A

## 1.2.3.24 *gaoSetFfcZeroMeanState()*

No description provided.

Input/Send parameters:

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Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00000025	N/A	N/A	N/A
<b>data</b>	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

#### 1.2.3.25 *gaoGetFfcZeroMeanState()*

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00000026	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.3 Module: LAGRANGE

Functions to control the temperature compensation features of the camera.

### 1.3.1 Enums

No enumerations in module lagrange.

### 1.3.2 Structs

No struct types in module lagrange.

### 1.3.3 Functions

No public functions defined.

## 1.4 Module: ROIC

No description provided.

### 1.4.1 Enums

#### 1.4.1.1 *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

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FLR\_ROIC\_TEMP\_MODE\_END = 3

## 1.4.2 Structs

### 1.4.2.1 FLR\_ROIC\_FPATEMP\_TABLE\_T

Field Name	DataType	Bytes
<b>value</b>	INT_16*32	64

## 1.4.3 Functions

### 1.4.3.1 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
<b>FunctionID</b>	0x00020001	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.4.3.2 roicGetFrameCount()

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00020002	N/A	N/A	N/A

Output/Receive parameters:

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

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## 1.4.3.3 *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
<b>FunctionID</b>	0x00020006	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.4.3.4 *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
<b>FunctionID</b>	0x00020014	N/A	N/A	N/A
<b>state</b>	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

## 1.4.3.5 *roicGetFPARampState()*

Gets the state of the sensor array ramp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00020015	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.4.3.6 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
<b>FunctionID</b>	0x00020019	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.4.3.7 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
<b>FunctionID</b>	0x0002001A	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.4.3.8 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)

Input/Send parameters:

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

No output parameters.

## 1.4.3.9 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
<b>FunctionID</b>	0x0002001C	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.4.3.10 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
<b>FunctionID</b>	0x0002001D	N/A	N/A	N/A
<b>data</b>	FLR_ROIC_TEMP_MODE_E	0:4	N/A	N/A

No output parameters.

## 1.4.3.11 roicGetFPATempMode()

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0002001E	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.4.3.12 *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
<b>FunctionID</b>	0x00020020	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.4.3.13 *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
<b>FunctionID</b>	0x00020022	N/A	N/A	N/A
<b>data</b>	UINT_16	0:2	N/A	N/A

No output parameters.

## 1.4.3.14 *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
<b>FunctionID</b>	0x00020023	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.5 Module: BPR

No description provided.

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## 1.5.1 Enums

No enumerations in module bpr.

## 1.5.2 Structs

No struct types in module bpr.

## 1.5.3 Functions

### 1.5.3.1 *bprSetState()*

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

Input/Send parameters:

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

No output parameters.

### 1.5.3.2 *bprGetState()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00030001	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.6 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 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]`.

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## 1.6.1 Enums

### 1.6.1.1 FLR\_TELEMETRY\_LOC\_E — <INT\_32>

FLR\_TELEMETRY\_LOC\_TOP = 0  
FLR\_TELEMETRY\_LOC\_BOTTOM = 1  
FLR\_TELEMETRY\_LOC\_END = 2

### 1.6.1.2 FLR\_TELEMETRY\_PACKING\_E — <INT\_32>

FLR\_TELEMETRY\_PACKING\_DEFAULT = 0  
FLR\_TELEMETRY\_PACKING\_Y = 1  
FLR\_TELEMETRY\_PACKING\_8BITS = 2  
FLR\_TELEMETRY\_PACKING\_END = 3

## 1.6.2 Structs

No struct types in module telemetry.

## 1.6.3 Functions

### 1.6.3.1 *telemetrySetState()*

Set the telemetry state to Enabled or Disabled.

Input/Send parameters:

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

No output parameters.

### 1.6.3.2 *telemetryGetState()*

Return the current telemetry state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00040002	N/A	N/A	N/A

Output/Receive parameters:

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

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## 1.6.3.3 *telemetrySetLocation()*

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

Input/Send parameters:

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

No output parameters.

## 1.6.3.4 *telemetryGetLocation()*

Return the current telemetry location.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00040004	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.6.3.5 *telemetrySetPacking()*

Sets the type of packing that the telemetry data is presented - 16 Bit, Color or 8 -Bit

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00040005	N/A	N/A	N/A
<b>data</b>	FLR_TELEMETRY_PACKING_E	0:4	N/A	N/A

No output parameters.

## 1.6.3.6 *telemetryGetPacking()*

Gets the telemetry packing format.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00040006	N/A	N/A	N/A

Output/Receive parameters:

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Name	DataType	Bytes	Min	Max
<b>data</b>	FLR_TELEMETRY_PACKING_E	0:4	N/A	N/A

## 1.7 Module: BOSON

Functions to control the general operation of the Boson camera.

### 1.7.1 Enums

#### 1.7.1.1 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

#### 1.7.1.2 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

#### 1.7.1.3 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

#### 1.7.1.4 FLR\_BOSON\_MYRIADTEMPMODE\_E — <INT\_32>

FLR\_BOSON\_NORMAL\_MYRIADTEMP\_MODE = 0  
FLR\_BOSON\_STATIC\_MYRIADTEMP\_MODE = 1

### 1.7.2 Structs

#### 1.7.2.1 FLR\_BOSON\_PARTNUMBER\_T

Field Name	DataType	Bytes
<b>value</b>	UCHAR*20	20

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## 1.7.2.2 FLR\_BOSON\_SENSOR\_PARTNUMBER\_T

Field Name	Data Type	Bytes
<b>value</b>	UCHAR*32	32

## 1.7.2.3 FLR\_BOSON\_GAIN\_SWITCH\_PARAMS\_T

Field Name	Data Type	Bytes
<b>pHighToLowPercent</b>	UINT_32	4
<b>cHighToLowPercent</b>	UINT_32	4
<b>pLowToHighPercent</b>	UINT_32	4
<b>hysteresisPercent</b>	UINT_32	4

## 1.7.3 Functions

### 1.7.3.1 bosonGetCameraSN()

Returns the camera's serial number.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050002	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>data</b>	UINT_32	0:4	N/A	N/A

### 1.7.3.2 bosonGetCameraPN()

Returns the camera's part number.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050004	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.7.3.3 *bosonGetSensorSN()*

Returns the sensor's serial number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050006	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.7.3.4 *bosonRunFFC()*

Performs an FFC operation.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050007	N/A	N/A	N/A

No output parameters.

### 1.7.3.5 *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.

Input/Send parameters:

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

No output parameters.

### 1.7.3.6 *bosonGetFFCTempThreshold()*

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

Input/Send parameters:

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Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050009	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.7.3.7 *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
<b>FunctionID</b>	0x0005000A	N/A	N/A	N/A
<b>data</b>	UINT_32	0:4	N/A	N/A

No output parameters.

#### 1.7.3.8 *bosonGetFFCFrameThreshold()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0005000B	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.7.3.9 *bosonGetFFCInProgress()*

Gets the mode of the FFC state machine.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0005000C	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.7.3.10 *bosonReboot()*

Tells the camera to perform a reboot.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050010	N/A	N/A	N/A

No output parameters.

### 1.7.3.11 *bosonSetFFCMode()*

Sets the mode of the camera's FFC operation.

Input/Send parameters:

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

No output parameters.

### 1.7.3.12 *bosonGetFFCMode()*

Gets the mode of the camera's FFC operation.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050013	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.7.3.13 *bosonSetGainMode()*

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

Input/Send parameters:

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

No output parameters.

#### 1.7.3.14 *bosonGetGainMode()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050015	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.7.3.15 *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
<b>FunctionID</b>	0x00050018	N/A	N/A	N/A

No output parameters.

#### 1.7.3.16 *bosonReadDynamicHeaderFromFlash()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050019	N/A	N/A	N/A

No output parameters.

#### 1.7.3.17 *bosonRestoreFactoryDefaultsFromFlash()*

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

Input/Send parameters:

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Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005001B	N/A	N/A	N/A

No output parameters.

## 1.7.3.18 *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	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050020	N/A	N/A	N/A

No output parameters.

## 1.7.3.19 *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	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050021	N/A	N/A	N/A

No output parameters.

## 1.7.3.20 *bosonGetSoftwareRev()*

Returns the version of the Camera Software.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050022	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>major</b>	UINT_32	0:4	N/A	N/A
<b>minor</b>	UINT_32	4:8	N/A	N/A
<b>patch</b>	UINT_32	8:12	N/A	N/A

## 1.7.3.21 *bosonSetBadPixelLocation()*

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005002D	N/A	N/A	N/A
<b>row</b>	UINT_32	0:4	N/A	N/A
<b>col</b>	UINT_32	4:8	N/A	N/A

No output parameters.

## 1.7.3.22 *bosonlookupFPATempDegCx10()*

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050030	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>data</b>	INT_16	0:2	N/A	N/A

## 1.7.3.23 *bosonlookupFPATempDegKx10()*

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050031	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>data</b>	UINT_16	0:2	N/A	N/A

## 1.7.3.24 *bosonWriteLensNvFfcToFlash()*

Stores the current flat-field correction terms to non-volatile flash.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
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<b>FunctionID</b>	0x00050033	N/A	N/A	N/A
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No output parameters.

#### 1.7.3.25 *bosonWriteLensGainToFlash()*

Writes the current Lens Gain map to flash.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050035	N/A	N/A	N/A

No output parameters.

#### 1.7.3.26 *bosonSetLensNumber()*

Sets the desired lens number

Input/Send parameters:

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

No output parameters.

#### 1.7.3.27 *bosonGetLensNumber()*

Returns the current lens number.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050039	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.7.3.28 *bosonSetTableNumber()*

Sets the desired table number.

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Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005003A	N/A	N/A	N/A
<b>tableNumber</b>	UINT_32	0:4	N/A	N/A

No output parameters.

#### 1.7.3.29 *bosonGetTableNumber()*

Returns the current table number.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005003B	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>tableNumber</b>	UINT_32	0:4	N/A	N/A

#### 1.7.3.30 *bosonGetSensorPN()*

Returns the sensor's part number.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005003F	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>sensorPN</b>	FLR_BOSON_SENSOR_PARTNUMBER_T	0:32	N/A	N/A

#### 1.7.3.31 *bosonSetGainSwitchParams()*

Sets the parameters for the auto gain switching.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050040	N/A	N/A	N/A

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<b>parm_struct</b>	FLR_BOSON_GAIN_SWITCH_PARAM_T	0:16	N/A	N/A
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No output parameters.

## 1.7.3.32 bosonGetGainSwitchParams()

Gets the parameters for the auto gain switching.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050041	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>parm_struct</b>	FLR_BOSON_GAIN_SWITCH_PARAM_T	0:16	N/A	N/A

## 1.7.3.33 bosonGetSwitchToHighGainFlag()

Gets the status of the SwitchToHighGain flag.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050042	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.7.3.34 bosonGetSwitchToLowGainFlag()

Gets the status of the SwitchToLowGain flag.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050043	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
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<b>switchToLowGainFlag</b>	UCHAR	0:1	N/A	N/A
----------------------------	-------	-----	-----	-----

## 1.7.3.35 *bosonGetCLOWToHighPercent()*

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050044	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>cLOWToHighPercent</b>	UINT_32	0:4	N/A	N/A

## 1.7.3.36 *bosonGetMaxNUCTables()*

Returns the number of the highest Gain table.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050045	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>maxNUCTables</b>	UINT_32	0:4	N/A	N/A

## 1.7.3.37 *bosonGetMaxLensTables()*

Returns the number of Lens tables the camera supports.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050046	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
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<b>maxLensTables</b>	UINT_32	0:4	N/A	N/A
----------------------	---------	-----	-----	-----

## 1.7.3.38 *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
<b>FunctionID</b>	0x0005004E	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.7.3.39 *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
<b>FunctionID</b>	0x0005004F	N/A	N/A	N/A
<b>data</b>	UINT_16	0:2	N/A	N/A

No output parameters.

## 1.7.3.40 *bosonCheckForTableSwitch()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050050	N/A	N/A	N/A

No output parameters.

## 1.7.3.41 *bosonGetDesiredTableNumber()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
------	----------	-------	-----	-----

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<b>FunctionID</b>	0x00050052	N/A	N/A	N/A
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Output/Receive parameters:

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

#### 1.7.3.42 *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
<b>FunctionID</b>	0x00050054	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.7.3.43 *bosonGetFfcDesired()*

Gets the state of the FFC desired flag.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050055	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.7.3.44 *bosonGetSwRevInHeader()*

Gets the version of the software that the header was written with. It could be different than the current software version.

Input/Send parameters:

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Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050056	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>major</b>	UINT_32	0:4	N/A	N/A
<b>minor</b>	UINT_32	4:8	N/A	N/A
<b>patch</b>	UINT_32	8:12	N/A	N/A

## 1.7.3.45 *bosonGetLastFFCFrameCount()*

Gets the frame count when the last FFC occurred.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005005D	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>frameCount</b>	UINT_32	0:4	N/A	N/A

## 1.7.3.46 *bosonGetLastFFCTempDegKx10()*

Gets the temperature in degK\*10 when the last FFC occurred.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005005E	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>temp</b>	UINT_16	0:2	N/A	N/A

## 1.7.3.47 *bosonGetTableSwitchDesired()*

Gets the value of the table switch desired state.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005005F	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>tableSwitchDesired</b>	UINT_16	0:2	N/A	N/A

#### 1.7.3.48 *bosonGetOverTempThreshold()*

Gets the temperature threshold in deg C above with the camera will go into low power state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050061	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>temperatureInC</b>	FLOAT	0:4	N/A	N/A

#### 1.7.3.49 *bosonGetLowPowerMode()*

Gets the state of low power flag. If enabled, the camera is in low power state and not fully functional.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050062	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>lowPowerMode</b>	UINT_16	0:2	N/A	N/A

#### 1.7.3.50 *bosonGetOverTempEventOccurred()*

Gets the state of the overTemp event occurred flag. If enabled, it means that an overTemp event has occurred. It continues to be set in the low power state. It gets cleared when the core temperature goes below or is equal to Threshold - 6°C.

Input/Send parameters:

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Name	DataType	Bytes	Min	Max
FunctionID	0x00050063	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.7.3.51 *bosonSetPermitThermalShutdownOverride()*

Sets the flag to ignore the overTemp event.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050064	N/A	N/A	N/A
permitThermalShutdownOverride	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

### 1.7.3.52 *bosonGetPermitThermalShutdownOverride()*

Gets the state of the flag to ignore the overTemp event.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
FunctionID	0x00050065	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.7.3.53 *bosonGetMyriadTemp()*

Gets the core temperature in °C.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050068	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>myriadTemp</b>	FLOAT	0:4	N/A	N/A

## 1.7.3.54 bosonGetNvFFCNucTableNumberLens0()

Gets the associated the NUC table with the NVFFC map that was written to Lens0.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0005006D	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>nvFFCNucTableNumberLens0</b>	INT_32	0:4	N/A	N/A

## 1.7.3.55 bosonGetNvFFCNucTableNumberLens1()

Gets the associated the NUC table with the NVFFC map that was written to Lens1.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0005006F	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>nvFFCNucTableNumberLens1</b>	INT_32	0:4	N/A	N/A

## 1.7.3.56 bosonGetNvFFCFPATempDegKx10Lens0()

Gets the FPA Temp at the time the NVFFC map was written to flash for Lens0.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050071	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>nvFFCFPAT empDegKx 10Lens0</b>	UINT_16	0:2	N/A	N/A

### 1.7.3.57 *bosonGetNvFFCFPATempDegKx10Lens1()*

Gets the FPA Temp at the time the NVFFC map was written to flash for Lens1.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050073	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>nvFFCFPAT empDegKx 10Lens1</b>	UINT_16	0:2	N/A	N/A

### 1.7.3.58 *bosonSetFFCWarnTimeInSecx10()*

Sets the amount of time in 10ths of a second before the occurrence of FFC that the warn time symbol should be displayed and the ffc state is set to imminent.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050074	N/A	N/A	N/A
<b>ffcWarnTime</b>	UINT_16	0:2	N/A	N/A

No output parameters.

### 1.7.3.59 *bosonGetFFCWarnTimeInSecx10()*

Gets the ffc warn time in 10ths of a second.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050075	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>ffcWarnTime</b>	UINT_16	0:2	N/A	N/A

### 1.7.3.60 *bosonGetOverTempEventCounter()*

Gets the counter value that counts the number of times the overTemp event occurred.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050076	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>overTempEventCounter</b>	UINT_32	0:4	N/A	N/A

### 1.7.3.61 *bosonSetOverTempTimerInSec()*

Sets the time in seconds that we want to wait before setting the camera in low power state after an overTemp event has occurred.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00050077	N/A	N/A	N/A
<b>overTempTimerInSec</b>	UINT_16	0:2	N/A	N/A

No output parameters.

### 1.7.3.62 *bosonGetOverTempTimerInSec()*

Gets the overTemp countdown timer in seconds.

Input/Send parameters:

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Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050078	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>overTempTimerInSec</b>	UINT_16	0:2	N/A	N/A

### 1.7.3.63 *bosonUnloadCurrentLensCorrections()*

Set current lens maps to unity. Lens gain map will remain until next reboot, SFFC/NVFFC will remain until next lens switch (or reboot). See also: *bosonReloadCurrentLensCorrections*.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00050079	N/A	N/A	N/A

No output parameters.

### 1.7.3.64 *bosonSetTimeForQuickFFCsInSecs()*

Sets the number of seconds after startup that FFC trigger params are 'reduced' to produce FFC events more often.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0005007A	N/A	N/A	N/A
<b>timeForQuickFFCsInSecs</b>	UINT_32	0:4	N/A	N/A

No output parameters.

### 1.7.3.65 *bosonGetTimeForQuickFFCsInSecs()*

Gets the number of seconds after startup that FFC trigger params are 'reduced' to produce FFC events more often.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
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<b>FunctionID</b>	0x0005007B	N/A	N/A	N/A
-------------------	------------	-----	-----	-----

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>timeForQuickFFCsInSecs</b>	UINT_32	0:4	N/A	N/A

### 1.7.3.66 *bosonReloadCurrentLensCorrections()*

Reload current lens maps from non-volatile flash.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0005007C	N/A	N/A	N/A

No output parameters.

### 1.7.3.67 *bosonGetBootTimestamps()*

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0005007F	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>FirstLight</b>	FLOAT	0:4	N/A	N/A
<b>StartInit</b>	FLOAT	4:8	N/A	N/A
<b>BosonExec Done</b>	FLOAT	8:12	N/A	N/A
<b>Timestamp 4</b>	FLOAT	12:16	N/A	N/A

## 1.8 Module: DVO

No description provided.

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## 1.8.1 Enums

### 1.8.1.1 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

### 1.8.1.2 FLR\_DVO\_OUTPUT\_RGB\_FORMAT\_E — <INT\_32>

FLR\_DVO\_RGB888 = 0  
FLR\_DVO\_MRGB888 = 1  
FLR\_DVO\_OUTPUT\_RGB\_FORMAT\_END = 2

### 1.8.1.3 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

### 1.8.1.4 FLR\_DVO\_OUTPUT\_CBCR\_ORDER\_E — <INT\_32>

FLR\_DVO\_CRCB = 0  
FLR\_DVO\_CBCR = 1  
FLR\_DVO\_OUTPUT\_CBCR\_ORDER\_END = 2

### 1.8.1.5 FLR\_DVO\_OUTPUT\_Y\_ORDER\_E — <INT\_32>

FLR\_DVO\_YFIRST = 0  
FLR\_DVO\_YLAST = 1  
FLR\_DVO\_OUTPUT\_Y\_ORDER\_END = 2

### 1.8.1.6 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

### 1.8.1.7 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

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## 1.8.1.8 FLR\_DVO\_DISPLAY\_MODE\_E — <INT\_32>

FLR\_DVO\_CONTINUOUS = 0  
FLR\_DVO\_ONE\_SHOT = 1  
FLR\_DVO\_DISPLAY\_MODE\_END = 2

## 1.8.1.9 FLR\_DVO\_VIDEO\_STANDARD\_E — <INT\_32>

FLR\_DVO\_NTSC = 0  
FLR\_DVO\_PAL = 1  
FLR\_DVO\_VIDEO\_STANDARD\_END = 2

## 1.8.2 Structs

### 1.8.2.1 FLR\_DVO\_YCBCR\_SETTINGS\_T

Field Name	DataType	Bytes
<b>ycbcrFormat</b>	FLR_DVO_OUTPUT_YCBCR_FORMAT_E	4
<b>cbrOrder</b>	FLR_DVO_OUTPUT_CBCR_ORDER_E	4
<b>yOrder</b>	FLR_DVO_OUTPUT_Y_ORDER_E	4

### 1.8.2.2 FLR\_DVO\_RGB\_SETTINGS\_T

Field Name	DataType	Bytes
<b>rgbFormat</b>	FLR_DVO_OUTPUT_RGB_FORMAT_E	4
<b>rgbOrder</b>	FLR_DVO_OUTPUT_RGB_ORDER_E	4

## 1.8.3 Functions

### 1.8.3.1 dvoSetAnalogVideoState()

Sets the state of analog video

Input/Send parameters:

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

No output parameters.

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## 1.8.3.2 *dvoGetAnalogVideoState()*

Gets the state of analog video

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00060005	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.8.3.3 *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
<b>FunctionID</b>	0x00060006	N/A	N/A	N/A
<b>format</b>	FLR_DVO_OUTPUT_FORMAT_E	0:4	N/A	N/A

No output parameters.

## 1.8.3.4 *dvoGetOutputFormat()*

Gets the output format for the lcd output

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00060007	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.8.3.5 *dvoSetOutputYCbCrSettings()*

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

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Input/Send parameters:

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

No output parameters.

### 1.8.3.6 *dvoGetOutputYCbCrSettings()*

Gets the YCBCR settings

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00060009	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.8.3.7 *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
<b>FunctionID</b>	0x0006000A	N/A	N/A	N/A
<b>settings</b>	FLR_DVO_RGB_SETTINGS_T	0:8	N/A	N/A

No output parameters.

### 1.8.3.8 *dvoGetOutputRGBSettings()*

Gets the RGB settings

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0006000B	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
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<b>settings</b>	FLR_DVO_RGB_SETTINGS_T	0:8	N/A	N/A
-----------------	------------------------	-----	-----	-----

## 1.8.3.9 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
<b>FunctionID</b>	0x0006000C	N/A	N/A	N/A

No output parameters.

## 1.8.3.10 dvoSetDisplayMode()

Sets the display mode to continuous or one shot

Input/Send parameters:

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

No output parameters.

## 1.8.3.11 dvoGetDisplayMode()

Gets the display mode

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0006000E	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.8.3.12 *dvoSetType()*

Sets the tap at which the DVO source points to

Input/Send parameters:

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

No output parameters.

## 1.8.3.13 *dvoGetType()*

Gets the tap at which the DVO source is pointing to

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00060010	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.8.3.14 *dvoSetVideoStandard()*

Sets the analog video output to be either NTSC or PAL.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00060011	N/A	N/A	N/A
<b>videoStandard</b>	FLR_DVO_VIDEO_STANDARD_E	0:4	N/A	N/A

No output parameters.

## 1.8.3.15 *dvoGetVideoStandard()*

Gets if the analog video output is NTSC or PAL.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00060012	N/A	N/A	N/A

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Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>videoStandard</b>	FLR_DVO_VIDEO_STANDARD_E	0:4	N/A	N/A

### 1.8.3.16 *dvoSetCheckVideoDacPresent()*

Sets the flag to either check or ignore the presence of the DAC. If we set this flag is enabled and if the video DAC is not present, we do not output the BT.656 data.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00060013	N/A	N/A	N/A
<b>checkVideoDacPresent</b>	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

### 1.8.3.17 *dvoGetCheckVideoDacPresent()*

Gets the state of the checkVideoDacPresent flag.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00060014	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>checkVideoDacPresent</b>	FLR_ENABLE_E	0:4	N/A	N/A

## 1.9 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.

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## 1.9.1 Enums

### 1.9.1.1 FLR\_CAPTURE\_SRC\_E — <INT\_32>

FLR\_CAPTURE\_SRC\_NUC = 1  
FLR\_CAPTURE\_SRC\_RESERVED = 2  
FLR\_CAPTURE\_SRC\_TNF = 3  
FLR\_CAPTURE\_SRC\_BLEND = 4  
FLR\_CAPTURE\_SRC\_END = 5

### 1.9.1.2 FLR\_CAPTURE\_FILE\_TYPE\_E — <INT\_32>

FLR\_CAPTURE\_NONE = 0  
FLR\_CAPTURE\_JPEG = 1  
FLR\_CAPTURE\_PNG = 2

## 1.9.2 Structs

### 1.9.2.1 FLR\_CAPTURE\_SETTINGS\_T

Field Name	DataType	Bytes
<b>dataSrc</b>	FLR_CAPTURE_SRC_E	4
<b>numFrames</b>	UINT_32	4
<b>bufferIndex</b>	UINT_16	2

### 1.9.2.2 FLR\_CAPTURE\_FILE\_SETTINGS\_T

Field Name	DataType	Bytes
<b>captureFileType</b>	FLR_CAPTURE_FILE_TYPE_E	4
<b>filePath</b>	UCHAR*128	128

## 1.9.3 Functions

### 1.9.3.1 captureSingleFrame()

Deprecated -- see captureSingleFrameWithSrc.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00070001	N/A	N/A	N/A

No output parameters.

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## 1.9.3.2 *captureFrames()*

Capture up to 16 frames from GAO, BadPixel, or TemporalFilter module to buffer(s). You can select which slot the capture begins in, though you cannot capture more frames than slots. Ex: Capturing 16 frames can only be accomplished if slot 0 is selected as the start point.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00070002	N/A	N/A	N/A
<b>data</b>	FLR_CAPTURE_SETTINGS_T	0:10	N/A	N/A

No output parameters.

## 1.9.3.3 *captureSingleFrameWithSrc()*

Capture a single frame from the selected source to capture buffer 0.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00070003	N/A	N/A	N/A
<b>data</b>	FLR_CAPTURE_SRC_E	0:4	N/A	N/A

No output parameters.

## 1.9.3.4 *captureSingleFrameToFile()*

Capture a single frame to SD card (unavailable in standard configurations)

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00070004	N/A	N/A	N/A

No output parameters.

## 1.10 Module: SCNR

Spatial Column Noise Reduction settings

### 1.10.1 Enums

No enumerations in module scnr.

## 1.10.2 Structs

No struct types in module scnr.

## 1.10.3 Functions

### 1.10.3.1 *scnrSetEnableState()*

Enable or disable Spatial Column Noise Reduction (scnr).

Input/Send parameters:

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

No output parameters.

### 1.10.3.2 *scnrGetEnableState()*

Get scnr correction's current state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00080002	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.10.3.3 *scnrSetThColSum()*

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

Input/Send parameters:

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

No output parameters.

### 1.10.3.4 *scnrGetThColSum()*

Get the current value of ThColSum.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00080004	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.10.3.5 *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
<b>FunctionID</b>	0x00080005	N/A	N/A	N/A
<b>data</b>	UINT_16	0:2	N/A	N/A

No output parameters.

### 1.10.3.6 *scnrGetThPixel()*

Get the current (base) value of ThPixel.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00080006	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.10.3.7 *scnrSetMaxCorr()*

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

Input/Send parameters:

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

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No output parameters.

## 1.10.3.8 *scnrGetMaxCorr()*

Get the (base) maximum correction.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00080008	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.10.3.9 *scnrGetThPixelApplied()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0008000A	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.10.3.10 *scnrGetMaxCorrApplied()*

Get the (scaled with temperature) maximum correction.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0008000B	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.10.3.11 *scnrSetThColSumSafe()*

Set the threshold (for Safe Mode) that determines if a column should increment or decrement by 1.

Input/Send parameters:

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

No output parameters.

## 1.10.3.12 *scnrGetThColSumSafe()*

Get the current value of ThColSum(Safe Mode).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0008000D	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.10.3.13 *scnrSetThPixelSafe()*

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

Input/Send parameters:

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

No output parameters.

## 1.10.3.14 *scnrGetThPixelSafe()*

Get the current (base) value of ThPixel (Safe Mode).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
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<b>FunctionID</b>	0x0008000F	N/A	N/A	N/A
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Output/Receive parameters:

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

### 1.10.3.15 *scnrSetMaxCorrSafe()*

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

Input/Send parameters:

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

No output parameters.

### 1.10.3.16 *scnrGetMaxCorrSafe()*

Get the (base) maximum correction (Safe Mode).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00080011	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.11 Module: AGC

No description provided.

### 1.11.1 Enums

No enumerations in module agc.

### 1.11.2 Structs

No struct types in module agc.

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## 1.11.3 Functions

### 1.11.3.1 *agcSetPercentPerBin()*

Defines that 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
<b>FunctionID</b>	0x00090001	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	0	100

No output parameters.

### 1.11.3.2 *agcGetPercentPerBin()*

Get the current PercentPerBin

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090002	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.3 *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
<b>FunctionID</b>	0x00090003	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	0	100

No output parameters.

## 1.11.3.4 *agcGetLinearPercent()*

Get the current setting for transfer function linearity.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00090004	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>data</b>	FLOAT	0:4	N/A	N/A

## 1.11.3.5 *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	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00090005	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	0	49

No output parameters.

## 1.11.3.6 *agcGetOutlierCut()*

Get the outlier cut

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00090006	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>data</b>	FLOAT	0:4	N/A	N/A

## 1.11.3.7 *agcGetDrOut()*

Get the current dynamic range setting.

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090008	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.8 *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
<b>FunctionID</b>	0x00090009	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	0.25	8

No output parameters.

### 1.11.3.9 *agcGetMaxGain()*

Get the current maximum gain of the transfer function.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0009000A	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.10 *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 be the output transfer function and a value of 1.0 for df will freeze the update of the transfer function (i.e. 100% damped).

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Input/Send parameters:

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

No output parameters.

### 1.11.3.11 *agcGetdf()*

Get the current damping factor.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0009000C	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.12 *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
<b>FunctionID</b>	0x0009000D	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	0.5	4

No output parameters.

### 1.11.3.13 *agcGetGamma()*

Get the current gamma correction value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0009000E	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.14 *agcGetFirstBin()*

Get the index of the first populated bin in the histogram (starting from 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
<b>FunctionID</b>	0x00090010	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.15 *agcGetLastBin()*

Get the index of the last populated bin in the histogram (starting from 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
<b>FunctionID</b>	0x00090012	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.16 *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.

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Input/Send parameters:

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

No output parameters.

### 1.11.3.17 *agcGetDetailHeadroom()*

Get the current Detail Headroom

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090014	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.18 *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
<b>FunctionID</b>	0x00090015	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	0.0	8

No output parameters.

### 1.11.3.19 *agcGetd2br()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090016	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.20 *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
<b>FunctionID</b>	0x00090017	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	1	1000 00

No output parameters.

### 1.11.3.21 *agcGetSigmaR()*

Get the current smoothing factor.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090018	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.22 *agcSetUseEntropy()*

Switches from Plateau Equalization to Entropy Equalization

Input/Send parameters:

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

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No output parameters.

## 1.11.3.23 *agcGetUseEntropy()*

Get the Entropy State of AGC

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0009001F	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.11.3.24 *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
<b>FunctionID</b>	0x00090020	N/A	N/A	N/A
<b>roi</b>	FLR_ROI_T	0:8	N/A	N/A

No output parameters.

## 1.11.3.25 *agcGetROI()*

Get the current boundaries of the ROI.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090021	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>roi</b>	FLR_ROI_T	0:8	N/A	N/A

## 1.11.3.26 *agcGetMaxGainApplied()*

Gets the scaled value of the max gain

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090025	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.27 *agcGetSigmaRApplied()*

Gets the scaled value of sigma R

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090026	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.11.3.28 *agcSetOutlierCutBalance()*

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090027	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	0.0	2.0

No output parameters.

### 1.11.3.29 *agcGetOutlierCutBalance()*

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090028	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
------	----------	-------	-----	-----

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<b>data</b>	FLOAT	0:4	N/A	N/A
-------------	-------	-----	-----	-----

### 1.11.3.30 *agcGetOutlierCutApplied()*

No description provided.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00090029	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>percentHigh</b>	FLOAT	0:4	N/A	N/A
<b>percentLow</b>	FLOAT	4:8	N/A	N/A

## 1.12 Module: TF

No description provided.

### 1.12.1 Enums

#### 1.12.1.1 *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

### 1.12.2 Structs

#### 1.12.2.1 *FLR\_TF\_WLUT\_T*

Field Name	DataType	Bytes
<b>value</b>	UCHAR*32	32

#### 1.12.2.2 *FLR\_TF\_NF\_LUT\_T*

Field Name	DataType	Bytes
<b>value</b>	UINT_16*17	34

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## 1.12.2.3 FLR\_TF\_TEMP\_SIGNAL\_COMP\_FACTOR\_LUT\_T

Field Name	DataType	Bytes
<b>value</b>	UINT_16*17	34

## 1.12.3 Functions

### 1.12.3.1 tfSetEnableState()

Enable or disable Temporal Noise Reduction (tnr)

Input/Send parameters:

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

No output parameters.

### 1.12.3.2 tfGetEnableState()

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000A0002	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.12.3.3 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
<b>FunctionID</b>	0x000A0003	N/A	N/A	N/A
<b>data</b>	UINT_16	0:2	N/A	N/A

No output parameters.

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## 1.12.3.4 *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
<b>FunctionID</b>	0x000A0004	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.12.3.5 *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
<b>FunctionID</b>	0x000A0005	N/A	N/A	N/A
<b>data</b>	UINT_16	0:2	N/A	N/A

No output parameters.

## 1.12.3.6 *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
<b>FunctionID</b>	0x000A0006	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.12.3.7 *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
<b>FunctionID</b>	0x000A0007	N/A	N/A	N/A
<b>data</b>	FLR_TF_WLUT_T	0:32	N/A	N/A

No output parameters.

## 1.12.3.8 *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
<b>FunctionID</b>	0x000A0008	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.12.3.9 *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
<b>FunctionID</b>	0x000A0009	N/A	N/A	N/A

Output/Receive parameters:

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



## 1.12.3.10 *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
<b>FunctionID</b>	0x000A000E	N/A	N/A	N/A
<b>data</b>	UINT_32	0:4	N/A	N/A

No output parameters.

## 1.12.3.11 *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
<b>FunctionID</b>	0x000A000F	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.12.3.12 *tfGetDelta\_nfApplied()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000A0016	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.12.3.13 *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

Output/Receive parameters:

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

## 1.13 Module: MEM

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

### 1.13.1 Enums

#### 1.13.1.1 *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\_JFFS2 = 9  
FLR\_MEM\_LAST = 10

### 1.13.2 Structs

No struct types in module mem.

### 1.13.3 Functions

#### 1.13.3.1 *memReadCapture()*

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

Input/Send parameters:

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

Output/Receive parameters:

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

## 1.13.3.2 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
<b>FunctionID</b>	0xFFFF0004	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.13.3.3 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
<b>FunctionID</b>	0xFFFF0005	N/A	N/A	N/A
<b>location</b>	FLR_MEM_LOCATION_E	0:4	N/A	N/A
<b>index</b>	UCHAR	4:5	N/A	N/A
<b>offset</b>	UINT_32	5:9	N/A	N/A
<b>sizeInBytes</b>	UINT_16	9:11	N/A	N/A
<b>data</b>	BYTEARRAY	11:267	N/A	N/A

No output parameters.

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## 1.13.3.4 *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
<b>FunctionID</b>	0xFFFF0006	N/A	N/A	N/A
<b>location</b>	FLR_MEM_LOCATION_E	0:4	N/A	N/A
<b>index</b>	UCHAR	4:5	N/A	N/A
<b>offset</b>	UINT_32	5:9	N/A	N/A
<b>sizeInBytes</b>	UINT_16	9:11	N/A	N/A

Output/Receive parameters:

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

## 1.13.3.5 *memGetFlashSize()*

Get the size of a specified Flash enum in bytes.

Input/Send parameters:

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

Output/Receive parameters:

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

## 1.13.3.6 *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
<b>FunctionID</b>	0xFFFF0008	N/A	N/A	N/A
<b>location</b>	FLR_MEM_LOCATION_E	0:4	N/A	N/A
<b>index</b>	UCHAR	4:5	N/A	N/A

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No output parameters.

### 1.13.3.7 *memEraseFlashPartial()*

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

Input/Send parameters:

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

No output parameters.

### 1.13.3.8 *memReadCurrentGain()*

Read bytes from the current applied gain buffer.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0xFFFF000A	N/A	N/A	N/A
<b>offset</b>	UINT_32	0:4	N/A	N/A
<b>sizeInBytes</b>	UINT_16	4:6	N/A	N/A

Output/Receive parameters:

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

### 1.13.3.9 *memGetGainSize()*

Get the size of the buffer in bytes, as well as the number of rows and columns in applied gain buffer.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0xFFFF000B	N/A	N/A	N/A

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Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>bytes</b>	UINT_32	0:4	N/A	N/A
<b>rows</b>	UINT_16	4:6	N/A	N/A
<b>columns</b>	UINT_16	6:8	N/A	N/A

## 1.14 Module: COLORLUT

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

### 1.14.1 Enums

#### 1.14.1.1 FLR\_COLORLUT\_ID\_E — <INT\_32>

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

### 1.14.2 Structs

No struct types in module colorLut.

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## 1.14.3 Functions

### 1.14.3.1 *colorLutSetControl()*

Set the current enable state of the colorize module.

Input/Send parameters:

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

No output parameters.

### 1.14.3.2 *colorLutGetControl()*

Get the current enable state of the colorize module.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000B0002	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.14.3.3 *colorLutSetId()*

Set the current color palette, by ID.

Input/Send parameters:

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

No output parameters.

### 1.14.3.4 *colorLutGetId()*

Get the current color palette ID.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000B0004	N/A	N/A	N/A

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Output/Receive parameters:

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

## 1.15 Module: SPNR

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

### 1.15.1 Enums

#### 1.15.1.1 FLR\_SPNR\_STATE\_E — <INT\_32>

FLR\_SPNR\_READY = 0

FLR\_SPNR\_DESIRED = 1

FLR\_SPNR\_IN\_PROGRESS = 2

FLR\_SPNR\_COMPLETE = 3

#### 1.15.1.2 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

### 1.15.2 Structs

#### 1.15.2.1 FLR\_SPNR\_PSD\_KERNEL\_T

Field Name	DataType	Bytes
<b>fvalue</b>	FLOAT*64	256

### 1.15.3 Functions

#### 1.15.3.1 spnrSetEnableState()

Enable or Disable SPNR corrections.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C0001	N/A	N/A	N/A
<b>data</b>	FLR_ENABLE_E	0:4	N/A	N/A

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No output parameters.

## 1.15.3.2 *spnrGetEnableState()*

Get current SPNR correction enable state.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C0002	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.15.3.3 *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
<b>FunctionID</b>	0x000C0004	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.15.3.4 *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
<b>FunctionID</b>	0x000C0005	N/A	N/A	N/A
<b>data</b>	UINT_32	0:4	N/A	N/A

No output parameters.

## 1.15.3.5 *spnrGetFrameDelay()*

Gets the SPNR frame delay parameter.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C0006	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.15.3.6 *spnrGetSFApplied()*

Get the currently applied Scale Factor.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C0015	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.15.3.7 *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
<b>FunctionID</b>	0x000C001A	N/A	N/A	N/A
<b>data</b>	FLR_SPNR_PSD_KERNEL_T	0:256	N/A	N/A

No output parameters.

## 1.15.3.8 *spnrGetPSDKernel()*

Gets the PSD kernel.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
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<b>FunctionID</b>	0x000C001B	N/A	N/A	N/A
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Output/Receive parameters:

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

### 1.15.3.9 *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
<b>FunctionID</b>	0x000C001C	N/A	N/A	N/A
<b>sfmin</b>	FLOAT	0:4	N/A	N/A

No output parameters.

### 1.15.3.10 *spnrGetSFMin()*

Get the current minimum Scale Factor value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C001D	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.15.3.11 *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
<b>FunctionID</b>	0x000C001E	N/A	N/A	N/A
<b>sfmax</b>	FLOAT	0:4	N/A	N/A

No output parameters.

## 1.15.3.12 *spnrGetSFMax()*

Get the current maximum Scale Factor value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C001F	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.15.3.13 *spnrSetDFMin()*

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

Input/Send parameters:

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

No output parameters.

## 1.15.3.14 *spnrGetDFMin()*

Get the current minimum Damping Factor value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C0021	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.15.3.15 *spnrSetDFMax()*

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

Input/Send parameters:

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

No output parameters.

### 1.15.3.16 *spnrGetDFMax()*

Get the current maximum Damping Factor value.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C0023	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.15.3.17 *spnrSetNormTarget()*

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

Input/Send parameters:

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

No output parameters.

### 1.15.3.18 *spnrGetNormTarget()*

Get the current NormTarget.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C0025	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
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<b>normTarget</b>	FLOAT	0:4	N/A	N/A
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### 1.15.3.19 *spnrGetNormTargetApplied()*

Gets the actual NormTarget applied in the algorithm after parameter scaling

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000C0026	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>normTargetApplied</b>	FLOAT	0:4	N/A	N/A

## 1.16 Module: SCALER

This module is used to control eZoom functionality.

### 1.16.1 Enums

No enumerations in module scaler.

### 1.16.2 Structs

#### 1.16.2.1 *FLR\_SCALER\_ZOOM\_PARAMS\_T*

Field Name	DataType	Bytes
<b>zoom</b>	UINT_32	4
<b>xCenter</b>	UINT_32	4
<b>yCenter</b>	UINT_32	4

### 1.16.3 Functions

#### 1.16.3.1 *scalerGetMaxZoom()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
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<b>FunctionID</b>	0x000D0001	N/A	N/A	N/A
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Output/Receive parameters:

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

### 1.16.3.2 *scalerSetZoom()*

Set the current zoom parameters.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000D0002	N/A	N/A	N/A
<b>zoomParams</b>	FLR_SCALER_ZOOM_PARAMS_T	0:12	N/A	N/A

No output parameters.

### 1.16.3.3 *scalerGetZoom()*

Get the current zoom parameters.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000D0003	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>zoomParams</b>	FLR_SCALER_ZOOM_PARAMS_T	0:12	N/A	N/A

### 1.16.3.4 *scalerSetFractionalZoom()*

Alternate configuration that allows for scaling below 1x.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000D0007	N/A	N/A	N/A
<b>zoomNumerator</b>	UINT_32	0:4	N/A	N/A

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<b>zoomDeno minator</b>	UINT_32	4:8	N/A	N/A
<b>zoomXCen ter</b>	UINT_32	8:12	N/A	N/A
<b>zoomYCen ter</b>	UINT_32	12:16	N/A	N/A
<b>inChangeEn able</b>	FLR_ENABLE_E	16:20	N/A	N/A
<b>zoomOutXC enter</b>	UINT_32	20:24	N/A	N/A
<b>zoomOutYC enter</b>	UINT_32	24:28	N/A	N/A
<b>outChangeE nable</b>	FLR_ENABLE_E	28:32	N/A	N/A

No output parameters.

## 1.16.3.5 *scalerSetIndexZoom()*

Internal function for zoom configuration.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x000D0008	N/A	N/A	N/A
<b>zoomIndex</b>	UINT_32	0:4	N/A	N/A
<b>zoomXCen ter</b>	UINT_32	4:8	N/A	N/A
<b>zoomYCen ter</b>	UINT_32	8:12	N/A	N/A
<b>inChangeEn able</b>	FLR_ENABLE_E	12:16	N/A	N/A
<b>zoomOutXC enter</b>	UINT_32	16:20	N/A	N/A
<b>zoomOutYC enter</b>	UINT_32	20:24	N/A	N/A
<b>outChangeE nable</b>	FLR_ENABLE_E	24:28	N/A	N/A

No output parameters.

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## 1.17 Module: SYSCTRL

General Pipeline controls

### 1.17.1 Enums

No enumerations in module sysctrl.

### 1.17.2 Structs

No struct types in module sysctrl.

### 1.17.3 Functions

#### 1.17.3.1 *sysctrlSetFreezeState()*

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

Input/Send parameters:

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

No output parameters.

#### 1.17.3.2 *sysctrlGetFreezeState()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000E0002	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.17.3.3 *sysctrlGetCameraFrameRate()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x000E0007	N/A	N/A	N/A

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Output/Receive parameters:

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

## 1.18 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.

### 1.18.1 Enums

#### 1.18.1.1 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  
 FLR\_TESTRAMP\_VTST\_MOVING\_LINE\_BLACK = 8  
 FLR\_TESTRAMP\_VTST\_DIAGONAL\_LR = 9  
 FLR\_TESTRAMP\_VTST\_DIAGONAL\_RL = 10  
 FLR\_TESTRAMP\_TYPE\_LAST = 11

### 1.18.2 Structs

#### 1.18.2.1 FLR\_TESTRAMP\_SETTINGS\_T

Field Name	DataType	Bytes
<b>start</b>	UINT_16	2
<b>end</b>	UINT_16	2
<b>increment</b>	UINT_16	2

### 1.18.3 Functions

#### 1.18.3.1 testRampSetType()

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

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Input/Send parameters:

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

No output parameters.

### 1.18.3.2 testRampGetType()

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

Input/Send parameters:

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

Output/Receive parameters:

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

### 1.18.3.3 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
<b>FunctionID</b>	0x00100002	N/A	N/A	N/A
<b>index</b>	UCHAR	0:1	N/A	N/A
<b>data</b>	FLR_TESTRAMP_SETTINGS_T	1:7	N/A	N/A

No output parameters.

### 1.18.3.4 testRampGetSettings()

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00100003	N/A	N/A	N/A

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<b>index</b>	UCHAR	0:1	N/A	N/A
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Output/Receive parameters:

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

### 1.18.3.5 *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
<b>FunctionID</b>	0x00100004	N/A	N/A	N/A
<b>data</b>	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

### 1.18.3.6 *testRampGetMotionState()*

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

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00100005	N/A	N/A	N/A

Output/Receive parameters:

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

### 1.18.3.7 *testRampSetIndex()*

Display the selected ramp buffer on the next frame.

Input/Send parameters:

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

No output parameters.

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## 1.18.3.8 testRampGetIndex()

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00100007	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>data</b>	UCHAR	0:1	N/A	N/A

## 1.18.3.9 testRampGetMaxIndex()

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

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00100008	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>data</b>	UCHAR	0:1	N/A	N/A

## 1.19 Module: SYMBOLOGY

Use symbology commands to draw over video imagery. Colors are in 31bit ARGB color space. Transparency ("A") is from 0 (fully solid color) to 127 (fully transparent), while R,G, and B range from 0-255. Color codes are represented as a 4-byte unsigned integer (0xAARRGGBB).

### 1.19.1 Enums

#### 1.19.1.1 FLR\_SYMBOLOGY\_TEXT\_ALIGNMENT\_E — <INT\_16>

FLR\_SYMBOLOGY\_LEFT\_TOP = 17  
FLR\_SYMBOLOGY\_CENTER\_TOP = 18  
FLR\_SYMBOLOGY\_RIGHT\_TOP = 19  
FLR\_SYMBOLOGY\_LEFT\_MIDDLE = 33  
FLR\_SYMBOLOGY\_CENTER\_MIDDLE = 34

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FLR\_SYMBOLOLOGY\_RIGHT\_MIDDLE = 35  
FLR\_SYMBOLOLOGY\_LEFT\_BOTTOM = 49  
FLR\_SYMBOLOLOGY\_CENTER\_BOTTOM = 50  
FLR\_SYMBOLOLOGY\_RIGHT\_BOTTOM = 51  
FLR\_SYMBOLOLOGY\_ALIGNMENT\_LAST = 64

## 1.19.2 Structs

No struct types in module symbology.

## 1.19.3 Functions

### 1.19.3.1 *symbologySetEnable()*

Enable or disable drawing of all symbology, including systemSymbols.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140000	N/A	N/A	N/A
<b>draw_symbols</b>	FLR_ENABLE_E	0:4	N/A	N/A

No output parameters.

### 1.19.3.2 *symbologyCreateBitmap()*

Create a bitmap object by describing ID, height, width, and position of the top/leftmost pixel. See symbologySendData to fill the pixel data. Width must be a multiple of 8 pixels in this release.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140001	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>width</b>	INT_16	5:7	N/A	N/A
<b>height</b>	INT_16	7:9	N/A	N/A

No output parameters.

## 1.19.3.3 *symbologySendData()*

Send data to an existing bitmap object. Limited to 128bytes per transaction, automatically increments the write pointer. Bitmap is described from left to right, starting on the uppermost row. Pixels are described as 4 sequential bytes containing A, R, G, and B. Transparency "A" ranges from 0 (fully visible) to 127/0x7F (fully transparent). R, G, and B range from 0 to 255/0xFF. Transactions must be exactly 128 bytes long, pad buffer with 0x00 and adjust the size parameter to match the valid bytes sent.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140003	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>size</b>	INT_16	1:3	N/A	N/A
<b>text</b>	UCHAR*128	3:131	N/A	N/A

No output parameters.

## 1.19.3.4 *symbologyCreateArc()*

Create an arc object by describing ID, position of the top/leftmost pixel in the bounding rectangle, height, width, start angle (0-360.0 degrees), end angle (0-360.0 degrees) and the 4byte color code (0xAARRGGBB).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140004	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>width</b>	INT_16	5:7	N/A	N/A
<b>height</b>	INT_16	7:9	N/A	N/A
<b>start_angle</b>	FLOAT	9:13	N/A	N/A
<b>end_angle</b>	FLOAT	13:17	N/A	N/A
<b>color</b>	UINT_32	17:21	N/A	N/A

No output parameters.

## 1.19.3.5 symbologyCreateText()

Create a text object by describing ID, position of the top/leftmost pixel in the bounding rectangle, height, width, font index (1=system font, 2=user configurable), font size (~height in pixels), alignment of the text, 4byte color code (0xAARRGGBB), and a NULL terminated UTF-8 string containing exactly 128 bytes (pad the end of the string with NULL characters if necessary).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140006	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>width</b>	INT_16	5:7	N/A	N/A
<b>height</b>	INT_16	7:9	N/A	N/A
<b>font</b>	CHAR	9:10	N/A	N/A
<b>size</b>	INT_16	10:12	N/A	N/A
<b>alignment</b>	FLR_SYBOLOGY_TEXT_ALIGNME NT_E	12:14	N/A	N/A
<b>color</b>	UINT_32	14:18	N/A	N/A
<b>text</b>	UCHAR*128	18:146	N/A	N/A

No output parameters.

## 1.19.3.6 symbologyMoveSprite()

Change the location of an existing symbology object's top/leftmost pixel to the specified coordinates.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140007	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A

No output parameters.



## 1.19.3.7 *symbologyAddToGroup()*

Add an existing symbology object to a group. Use groups to move and draw several objects at once. Group 0 is used by the system, and is not user changeable.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140008	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>group_ID</b>	UCHAR	1:2	N/A	N/A

No output parameters.

## 1.19.3.8 *symbologyRemoveFromGroup()*

Remove a symbology object from a group.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140009	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>group_ID</b>	UCHAR	1:2	N/A	N/A

No output parameters.

## 1.19.3.9 *symbologyUpdateAndShow()*

Draw or hide an existing symbology object.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014000A	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>visible</b>	UCHAR	1:2	N/A	N/A

No output parameters.

## 1.19.3.10 *symbologyUpdateAndShowGroup()*

Draw or hide all symbols in an existing symbology group.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
------	----------	-------	-----	-----

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<b>FunctionID</b>	0x0014000B	N/A	N/A	N/A
<b>group_ID</b>	UCHAR	0:1	N/A	N/A
<b>visible</b>	UCHAR	1:2	N/A	N/A

No output parameters.

#### 1.19.3.11 *symbologyDelete()*

Remove a symbology object from all groups and delete it.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014000C	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A

No output parameters.

#### 1.19.3.12 *symbologyDeleteGroup()*

Remove all symbology objects from a group and delete each object.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014000D	N/A	N/A	N/A
<b>group_ID</b>	UCHAR	0:1	N/A	N/A

No output parameters.

#### 1.19.3.13 *symbologyCreateFilledRectangle()*

Create a rectangle that is a single solid color by describing ID, height, width, position of the top/leftmost pixel, and 4byte color code (0xAARRGGBB)

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014000E	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>width</b>	INT_16	5:7	N/A	N/A
<b>height</b>	INT_16	7:9	N/A	N/A
<b>color</b>	UINT_32	9:13	N/A	N/A

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No output parameters.

## 1.19.3.14 *symbologyCreateOutlinedRectangle()*

Create a rectangle that has a solid outline with transparent center by describing ID, height, width, location of top/leftmost pixel, and 4byte color code (0xAARRGGBB)

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00140010	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>width</b>	INT_16	5:7	N/A	N/A
<b>height</b>	INT_16	7:9	N/A	N/A
<b>color</b>	UINT_32	9:13	N/A	N/A

No output parameters.

## 1.19.3.15 *symbologyCreateBitmapFromPng()*

Not supported in current release.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00140012	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>size</b>	INT_16	5:7	N/A	N/A

No output parameters.

## 1.19.3.16 *symbologyCreateCompressedBitmap()*

Not supported in current release.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00140014	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A

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<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>width</b>	INT_16	5:7	N/A	N/A
<b>height</b>	INT_16	7:9	N/A	N/A

No output parameters.

#### 1.19.3.17 *symbologyCreateBitmapFromPngFile()*

Not supported in current release.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140016	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>path</b>	UCHAR*128	5:133	N/A	N/A

No output parameters.

#### 1.19.3.18 *symbologyResetWritePosition()*

Reset the write pointer for a bitmap object. See also *symbologySendData*.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140018	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A

No output parameters.

#### 1.19.3.19 *symbologyMoveByOffset()*

Move an existing symbology object's top/leftmost pixel by the specified horizontal and vertical offsets.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140019	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>off_X</b>	INT_16	1:3	N/A	N/A

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<b>off_Y</b>	INT_16	3:5	N/A	N/A
--------------	--------	-----	-----	-----

No output parameters.

## 1.19.3.20 *symbologyMoveGroupByOffset()*

Move all objects in a group by the specified horizontal and vertical offsets.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014001A	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>off_X</b>	INT_16	1:3	N/A	N/A
<b>off_Y</b>	INT_16	3:5	N/A	N/A

No output parameters.

## 1.19.3.21 *symbologyCreateFilledEllipse()*

Create an ellipse that is a single solid color by describing ID, height, width, location of top/leftmost pixel, and 4byte color code (0xAARRGGBB).

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014001B	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>width</b>	INT_16	5:7	N/A	N/A
<b>height</b>	INT_16	7:9	N/A	N/A
<b>color</b>	UINT_32	9:13	N/A	N/A

No output parameters.

## 1.19.3.22 *symbologyCreateLine()*

Create a line object by describing ID, 4byte color code, and the location of each endpoint.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014001C	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A

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<b>pos_X</b>	INT_16	1:3	N/A	N/A
<b>pos_Y</b>	INT_16	3:5	N/A	N/A
<b>pos_X2</b>	INT_16	5:7	N/A	N/A
<b>pos_Y2</b>	INT_16	7:9	N/A	N/A
<b>color</b>	UINT_32	9:13	N/A	N/A

No output parameters.

### 1.19.3.23 *symbologySetZorder()*

Assign a Z height to an existing symbology object. Objects with a large Z height draw over objects with a lower Z height.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014001D	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>zorder</b>	UCHAR	1:2	N/A	N/A

No output parameters.

### 1.19.3.24 *symbologySaveConfiguration()*

Save all current symbol objects and groups to persistent flash. Current visibility will also be saved.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014001E	N/A	N/A	N/A

No output parameters.

### 1.19.3.25 *symbologyReloadConfiguration()*

Load configuration from persistent flash, existing objects will be overwritten by conflicting objects in flash non-conflicting objects will remain.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x0014001F	N/A	N/A	N/A

No output parameters.

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## 1.19.3.26 *symbologyGetEnable()*

Get the current state of symbology engine.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00140020	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>draw_symbols</b>	FLR_ENABLE_E	0:4	N/A	N/A

## 1.19.3.27 *symbologySetClonesNumber()*

Add clones of already defined object. Clone objects differ from the original only in position.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00140021	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>numberOfClones</b>	UCHAR	1:2	N/A	N/A

No output parameters.

## 1.19.3.28 *symbologyMoveCloneByOffset()*

Move a clone of a symbology object by a horizontal and vertical offset.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00140022	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>cloneID</b>	UCHAR	1:2	N/A	N/A
<b>pos_X</b>	INT_16	2:4	N/A	N/A
<b>pos_Y</b>	INT_16	4:6	N/A	N/A

No output parameters.

## 1.19.3.29 *symbologyMoveCloneSprite()*

Move a clone of a symbology object to a new position.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00140023	N/A	N/A	N/A
<b>ID</b>	UCHAR	0:1	N/A	N/A
<b>cloneID</b>	UCHAR	1:2	N/A	N/A
<b>pos_X</b>	INT_16	2:4	N/A	N/A
<b>pos_Y</b>	INT_16	4:6	N/A	N/A

No output parameters.

## 1.20 Module: FILEOPS

Operations on the camera's internal filesystem. All paths are represented by fixed byte-width, null-terminated, utf-8 strings. All operations must use absolute paths for this release. The /jffs2/ directory contains symbology and splash screen data.

### 1.20.1 Enums

No enumerations in module fileOps.

### 1.20.2 Structs

No struct types in module fileOps.

### 1.20.3 Functions

#### 1.20.3.1 *fileOpsDir()*

List the contents of the current directory, returning one item per call. An empty string signals the end of the current directory.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00160000	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>dirent</b>	UCHAR*128	0:128	N/A	N/A

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## 1.20.3.2 *fileOpsCd()*

Change location to the new directory.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00160001	N/A	N/A	N/A
<b>path</b>	UCHAR*128	0:128	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>pwd</b>	UCHAR*128	0:128	N/A	N/A

## 1.20.3.3 *fileOpsMd()*

Make a new directory.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00160002	N/A	N/A	N/A
<b>path</b>	UCHAR*128	0:128	N/A	N/A

No output parameters.

## 1.20.3.4 *fileOpsFopen()*

Open a file, using "r", "w" to control mode. Returns a file index, if a file handle is available. Due to overhead, only a limited number of files can be opened simultaneously.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00160003	N/A	N/A	N/A
<b>path</b>	UCHAR*128	0:128	N/A	N/A
<b>mode</b>	UCHAR*128	128:256	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>id</b>	UINT_32	0:4	N/A	N/A

## 1.20.3.5 fileOpsFclose()

Close a file by index. All files should be closed before rebooting or removing power from the camera. Any failure to close files may result in loss of data and/or degraded camera performance.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00160004	N/A	N/A	N/A
<b>id</b>	UINT_32	0:4	N/A	N/A

No output parameters.

## 1.20.3.6 fileOpsFread()

Read bytes from file by index.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00160005	N/A	N/A	N/A
<b>id</b>	UINT_32	0:4	N/A	N/A
<b>length</b>	UINT_32	4:8	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>buf</b>	UCHAR*128	0:128	N/A	N/A
<b>ret</b>	UINT_32	128:132	N/A	N/A

## 1.20.3.7 fileOpsFwrite()

Write bytes to a file by index. File must be opened for writing. See also fileOpsGetFileSize().

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x00160006	N/A	N/A	N/A
<b>id</b>	UINT_32	0:4	N/A	N/A
<b>length</b>	UINT_32	4:8	N/A	N/A
<b>buf</b>	UCHAR*128	8:136	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
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<b>ret</b>	UINT_32	0:4	N/A	N/A
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## 1.20.3.8 *fileOpsFtell()*

Return the current position of the pointer in file by index. See also `fileOpsGetFileSize()`.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00160007	N/A	N/A	N/A
<b>id</b>	UINT_32	0:4	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>offset</b>	UINT_32	0:4	N/A	N/A

## 1.20.3.9 *fileOpsFseek()*

Move the pointer in file by index.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00160008	N/A	N/A	N/A
<b>id</b>	UINT_32	0:4	N/A	N/A
<b>offset</b>	UINT_32	4:8	N/A	N/A
<b>origin</b>	UINT_32	8:12	N/A	N/A

No output parameters.

## 1.20.3.10 *fileOpsFtruncate()*

Truncate a file to the specified size.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00160009	N/A	N/A	N/A
<b>id</b>	UINT_32	0:4	N/A	N/A
<b>length</b>	UINT_32	4:8	N/A	N/A

No output parameters.

## 1.20.3.11 *fileOpsRmdir()*

Recursively remove a directory and its contents.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0016000A	N/A	N/A	N/A
<b>path</b>	UCHAR*128	0:128	N/A	N/A

No output parameters.

## 1.20.3.12 *fileOpsRm()*

Remove a file.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0016000B	N/A	N/A	N/A
<b>path</b>	UCHAR*128	0:128	N/A	N/A

No output parameters.

## 1.20.3.13 *fileOpsRename()*

Rename a file or directory.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0016000C	N/A	N/A	N/A
<b>oldpath</b>	UCHAR*128	0:128	N/A	N/A
<b>newpath</b>	UCHAR*128	128:256	N/A	N/A

No output parameters.

## 1.20.3.14 *fileOpsGetFileSize()*

Return the total size of a file.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x0016000D	N/A	N/A	N/A
<b>path</b>	UCHAR*128	0:128	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>fileLength</b>	UINT_32	0:4	N/A	N/A

## 1.21 Module: JFFS2

The JFFS2 portion of the camera filesystem contains user accessible files, such as the symbology files and splash screen images. This allows the user to check and change the state of the JFFS2 partition. See also fileOps module.

### 1.21.1 Enums

#### 1.21.1.1 *FLR\_JFFS2\_STATE\_E* — <INT\_32>

FLR\_JFFS2\_INITIAL = 0  
FLR\_JFFS2\_CONFIGURED = 1  
FLR\_JFFS2\_MOUNTING = 2  
FLR\_JFFS2\_MOUNTED = 3  
FLR\_JFFS2\_UNMOUNTING = 4  
FLR\_JFFS2\_UNMOUNTED = 5  
FLR\_JFFS2\_FAILED\_MOUNT = 6  
FLR\_JFFS2\_FAILED\_UNMOUNT = 7  
FLR\_JFFS2\_FAILED\_CONFIG = 8  
FLR\_JFFS2\_DISABLED = 9  
FLR\_JFFS2\_STATE\_END = 10

### 1.21.2 Structs

No struct types in module jffs2.

### 1.21.3 Functions

#### 1.21.3.1 *jffs2Mount()*

Mount the jffs2 partition to /jffs2/.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x00170001	N/A	N/A	N/A

No output parameters.

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## 1.21.3.2 jffs2Unmount()

Unmount the jffs2 partition.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
FunctionID	0x00170002	N/A	N/A	N/A

No output parameters.

## 1.21.3.3 jffs2GetState()

Check the current state of the jffs2 partition.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
FunctionID	0x00170007	N/A	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
state	FLR_JFFS2_STATE_E	0:4	N/A	N/A

## 1.22 Module: SPLASHSCREEN

Splash screen allows for the display of static imagery during camera bootup, before live data is available. Splash screen images must be 320x256 or 640x512. Only PNG files are supported for current release.

### 1.22.1 Enums

#### 1.22.1.1 FLR\_SPLASHSCREEN\_FILETYPE\_E — <INT\_32>

FLR\_SPLASHSCREEN\_PNG = 0  
FLR\_SPLASHSCREEN\_BMP = 1  
FLR\_SPLASHSCREEN\_RAW = 2  
FLR\_SPLASHSCREEN\_NONE = 3  
FLR\_SPLASHSCREEN\_FILE\_END = 4

### 1.22.2 Structs

No struct types in module splashScreen.

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## 1.22.3 Functions

### 1.22.3.1 *splashScreenSetDuration()*

Set the minimum duration of splash screen display in ms. 0 is equivalent to disabling splash screen. If live imagery or additional splash screen is not available at the expiration of this time, the image will continue displaying until live imagery is ready.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001A0000	N/A	N/A	N/A
<b>screen_number</b>	UINT_32	0:4	N/A	N/A
<b>periodMs</b>	UINT_32	4:8	N/A	N/A

No output parameters.

### 1.22.3.2 *splashScreenSetDataType()*

Set the filetype for the selected splash screen. Only PNG is supported in this release.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001A0001	N/A	N/A	N/A
<b>screen_number</b>	UINT_32	0:4	N/A	N/A
<b>filetype</b>	FLR_SPLASHSCREEN_FILETYPE_E	4:8	N/A	N/A

No output parameters.

### 1.22.3.3 *splashScreenSetBackground()*

For 320x256 splash screens, set the background color as 0xRRGGBB.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001A0002	N/A	N/A	N/A
<b>screen_number</b>	UINT_32	0:4	N/A	N/A
<b>backgroundColor</b>	UINT_32	4:8	N/A	N/A

No output parameters.

## 1.22.3.4 *splashScreenGetDuration()*

Gets the minimum duration of display for the selected splash screen.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001A0003	N/A	N/A	N/A
<b>screen_number</b>	UINT_32	0:4	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>periodMs</b>	UINT_32	0:4	N/A	N/A

## 1.22.3.5 *splashScreenGetDataType()*

Gets the filetype for the selected splash screen.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001A0004	N/A	N/A	N/A
<b>screen_number</b>	UINT_32	0:4	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>filetype</b>	FLR_SPLASHSCREEN_FILETYPE_E	0:4	N/A	N/A

## 1.22.3.6 *splashScreenGetBackground()*

Get the background color for the selected splash screen.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001A0005	N/A	N/A	N/A
<b>screen_number</b>	UINT_32	0:4	N/A	N/A

Output/Receive parameters:

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Name	Data Type	Bytes	Min	Max
<b>backgroundColor</b>	UINT_32	0:4	N/A	N/A

## 1.23 Module: SYSTEMSYMBOLS

System symbols are drawn to inform the user of certain important signals, such as overheat condition.

### 1.23.1 Enums

#### 1.23.1.1 FLR\_SYSTEMSYMBOLS\_SYMBOL\_E — <INT\_32>

FLR\_SYSTEMSYMBOLS\_FFC\_IMMINENT = 0  
 FLR\_SYSTEMSYMBOLS\_FFC\_DESIRED = 1  
 FLR\_SYSTEMSYMBOLS\_TABLE\_SWITCH\_DESIRED = 2  
 FLR\_SYSTEMSYMBOLS\_LOW\_GAIN = 3  
 FLR\_SYSTEMSYMBOLS\_OVERTEMP = 4  
 FLR\_SYSTEMSYMBOLS\_SYMBOL\_LAST = 5

#### 1.23.1.2 FLR\_SYSTEMSYMBOLS\_ID\_TYPE\_E — <INT\_32>

FLR\_SYSTEMSYMBOLS\_ELEMENT = 0  
 FLR\_SYSTEMSYMBOLS\_GROUP = 1  
 FLR\_SYSTEMSYMBOLS\_ID\_LAST = 2

#### 1.23.1.3 FLR\_SYSTEMSYMBOLS\_STATE\_E — <INT\_32>

FLR\_SYSTEMSYMBOLS\_ENTERED = 0  
 FLR\_SYSTEMSYMBOLS\_EXITED = 1  
 FLR\_SYSTEMSYMBOLS\_STATE\_LAST = 2

### 1.23.2 Structs

No struct types in module systemSymbols.

### 1.23.3 Functions

#### 1.23.3.1 systemSymbolsGetID()

Get the current symbol or group ID associated with the specified signal.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x001B0002	N/A	N/A	N/A

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<b>symbol</b>	FLR_SYSTEMSYMBOLS_SYMBOL_E	0:4	N/A	N/A
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Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>id</b>	UCHAR	0:1	N/A	N/A
<b>id_type</b>	FLR_SYSTEMSYMBOLS_ID_TYPE_E	1:5	N/A	N/A

## 1.23.3.2 *systemSymbolsSetID()*

Set the current symbol or group ID that should be displayed for the specified signal.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x001B0003	N/A	N/A	N/A
<b>symbol</b>	FLR_SYSTEMSYMBOLS_SYMBOL_E	0:4	N/A	N/A
<b>id</b>	UCHAR	4:5	N/A	N/A
<b>id_type</b>	FLR_SYSTEMSYMBOLS_ID_TYPE_E	5:9	N/A	N/A

No output parameters.

## 1.23.3.3 *systemSymbolsGetEnable()*

Get the current enable state of the specified signal.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x001B0004	N/A	N/A	N/A
<b>symbol</b>	FLR_SYSTEMSYMBOLS_SYMBOL_E	0:4	N/A	N/A

Output/Receive parameters:

Name	Data Type	Bytes	Min	Max
<b>enabled</b>	FLR_ENABLE_E	0:4	N/A	N/A

## 1.23.3.4 *systemSymbolsSetEnable()*

Enable or disable the specified signal.

Input/Send parameters:

Name	Data Type	Bytes	Min	Max
<b>FunctionID</b>	0x001B0005	N/A	N/A	N/A
<b>symbol</b>	FLR_SYSTEMSYMBOLS_SYMBOL_E	0:4	N/A	N/A

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<b>enabled</b>	FLR_ENABLE_E	4:8	N/A	N/A
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No output parameters.

## 1.24 Module: SFFC

No description provided.

### 1.24.1 Enums

No enumerations in module sffc.

### 1.24.2 Structs

No struct types in module sffc.

### 1.24.3 Functions

#### 1.24.3.1 *sffcGetScaleFactor()*

Get the currently applied SFFC Scale Factor.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0000	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.24.3.2 *sffcGetDeltaTempLinearCoeff()*

Get the linear coefficient for delta FPA temp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0001	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.24.3.3 *sffcSetDeltaTempLinearCoeff()*

Set the linear coefficient for delta FPA temp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0002	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	N/A	N/A

No output parameters.

## 1.24.3.4 *sffcGetDeltaTempOffsetCoeff()*

Get the offset coefficient for delta FPA temp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0003	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.24.3.5 *sffcSetDeltaTempOffsetCoeff()*

Set the offset coefficient for delta FPA temp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0004	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	N/A	N/A

No output parameters.

## 1.24.3.6 *sffcGetFpaTempLinearCoeff()*

Get the linear coefficient for current FPA temp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0005	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.24.3.7 *sffcSetFpaTempLinearCoeff()*

Set the linear coefficient for current FPA temp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0006	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	N/A	N/A

No output parameters.

## 1.24.3.8 *sffcGetFpaTempOffsetCoeff()*

Get the offset coefficient for current FPA temp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0007	N/A	N/A	N/A

Output/Receive parameters:

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

## 1.24.3.9 *sffcSetFpaTempOffsetCoeff()*

Set the offset coefficient for current FPA temp.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0008	N/A	N/A	N/A
<b>data</b>	FLOAT	0:4	N/A	N/A

No output parameters.

## 1.24.3.10 *sffcGetDeltaTempTimeLimitInSecs()*

Get the number of seconds for which the delta FPA temp scale factor is applied.

Input/Send parameters:

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Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C0009	N/A	N/A	N/A

Output/Receive parameters:

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

#### 1.24.3.11 *sffcSetDeltaTempTimeLimitInSecs()*

Set the number of seconds for which the delta FPA temp scale factor is applied.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001C000A	N/A	N/A	N/A
<b>data</b>	UINT_32	0:4	N/A	N/A

No output parameters.

## 1.25 Module: IMAGESTATS

No description provided.

### 1.25.1 Enums

No enumerations in module imageStats.

### 1.25.2 Structs

No struct types in module imageStats.

### 1.25.3 Functions

#### 1.25.3.1 *imageStatsGetTotalHistPixelsInROI()*

Total number of pixels that are sub-sampled in the ROI.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0000	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
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<b>totalPixelsInROI</b>	UINT_32	0:4	N/A	N/A
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## 1.25.3.2 *imageStatsGetPopBelowLowToHighThresh()*

Number of pixels within the ROI with values below the Low to High threshold

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0001	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>popBelowLowToHighThreshold</b>	UINT_32	0:4	N/A	N/A

## 1.25.3.3 *imageStatsGetPopAboveHighToLowThresh()*

Number of pixels within the ROI with values above the High to Low threshold

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0002	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>popAboveHighToLowThreshold</b>	UINT_32	0:4	N/A	N/A

## 1.25.3.4 *imageStatsSetROI()*

Set the ROI for calculating statistics specified

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0003	N/A	N/A	N/A
<b>roi</b>	FLR_ROI_T	0:8	N/A	N/A

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No output parameters.

## 1.25.3.5 *imageStatsGetROI()*

Get the current ROI for calculating statistics.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0004	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>roi</b>	FLR_ROI_T	0:8	N/A	N/A

## 1.25.3.6 *imageStatsGetFirstBin()*

Returns the value of the lowest populated intensity histogram bin for the entire image

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0005	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>firstBin</b>	UINT_16	0:2	N/A	N/A

## 1.25.3.7 *imageStatsGetLastBin()*

Returns the value of the highest populated intensity histogram bin for the entire image

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0006	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>lastBin</b>	UINT_16	0:2	N/A	N/A

## 1.25.3.8 *imageStatsGetMean()*

Returns the image mean intensity for the entire image

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0007	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>mean</b>	UINT_16	0:2	N/A	N/A

### 1.25.3.9 *imageStatsGetFirstBinInROI()*

Returns the value of the lowest populated intensity histogram bin within the Image Stats ROI

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0008	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>firstBinInROI</b>	UINT_16	0:2	N/A	N/A

### 1.25.3.10 *imageStatsGetLastBinInROI()*

Returns the value of the highest populated intensity histogram bin within the Image Stats ROI

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D0009	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>lastBinInROI</b>	UINT_16	0:2	N/A	N/A

### 1.25.3.11 *imageStatsGetMeanInROI()*

Returns the image mean intensity within the Image Stats ROI

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Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0x001D000A	N/A	N/A	N/A

Output/Receive parameters:

Name	DataType	Bytes	Min	Max
<b>meanInROI</b>	UINT_16	0:2	N/A	N/A

## 1.26 Module: DUMMY

No description provided.

### 1.26.1 Enums

No enumerations in module dummy.

### 1.26.2 Structs

No struct types in module dummy.

### 1.26.3 Functions

#### 1.26.3.1 *dummyBadCommand()*

Deliberately invalid Command Id for negative testing.

Input/Send parameters:

Name	DataType	Bytes	Min	Max
<b>FunctionID</b>	0xDEADBEEF	N/A	N/A	N/A

No output parameters.