

OSXAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		

Profiling has been done in order to evaluate the resource consumption in terms of MIPS, RAM and FLASH figures may change depending on specific use case optimizations. The following figure shows the profiling results for source localization using a STM32F446 MCU based on an ARM M4 core with floating point unit running at 168 MHz (210 DMIPS available) and the IAR embedded workbench tool chain, version 7.70. Optimization has been set on High, speed.

Algorithm	Microphones	Resolution	CPU (MIPS)	FLASH (Bytes)	RAM (Bytes)
XCORR	2	30 degrees (distance = 0.08 m)	2.2	13664 + 24210 (for ARM code and tables).	2913
XCORR	4	30 degrees (distance = 0.08 m)	4.5		5641
XCORR	2	12 degrees (distance = 0.16 m)	4.0		2913
XCORR	4	12 degrees (distance = 0.16 m)	7.9		5641
GCC-PHAT	2	1 degree	49.7		17452
GCC-PHAT	4	1 degree	98.8		27093
GCC-PHAT	2	6 degrees	11.8		17452
GCC-PHAT	4	6 degrees	22.6		27093
GCC-PHAT	2	30 degrees	5.8		17452
GCC-PHAT	4	30 degrees	11.0		27093
BMPH	2	6 degrees	7.6		10920
BMPH	4	6 degrees	11.9		15016
BMPH	2	30 degrees	6.6		10920
BMPH	4	30 degrees	8.7		15016

osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		

Modules

Here is a list of all modules:

[detail level [1](#) [2](#) [3](#) [4](#)]

▼ MIDDLEWARES	
▼ OSX_ACOUSTIC_SL	
▼ osxAcousticSL Exported Constants	
OSX_Acoustic_SL_algorithm_type	Source Localization algorithm type
OSX_Acoustic_SL_errors	Source Localization errors
osxAcousticSL Exported Types	
osxAcousticSL Exported Functions	

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling	Modules	
<h2>MIDDLEWARES</h2>			

Modules

OSX_ACOUSTIC_SL

Detailed Description

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling	Modules	
OSX_ACOUSTIC_SL		MIDDLEWARES	
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Modules

[**osxAcousticSL Exported Constants**](#)

[**osxAcousticSL Exported Types**](#)

[**osxAcousticSL Exported Functions**](#)

Detailed Description

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osxAcousticSL Software Library

[Main Page](#)

[Related Pages](#)

[Modules](#)

[Data Structures](#)

[Files](#)

[Profiling](#)

[Modules](#) | [Macros](#)

osxAcousticSL Exported Constants

[MIDDLEWARES](#) » [OSX_ACOUSTIC_SL](#)

Modules

OSX_Acoustic_SL_algorithm_type

Source Localization algorithm type.

OSX_Acoustic_SL_errors

Source Localization errors.

Macros

```
#define OSX_ACOUSTIC_SL_NO_AUDIO_DETECTED -100
```

Detailed Description

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures	
Files	Profiling			Macros
OSX_Acoustic_SL_algorithm_type	MIDDLEWARES » OSX_ACOUSTIC_SL »	osxAcousticSL Exported Constants		

Source Localization algorithm type. [More...](#)

Macros

```
#define OSX_ACOUSTIC_SL_ALGORITHM_XCORR 0x00000001
```

```
#define OSX_ACOUSTIC_SL_ALGORITHM_GCCP 0x00000002
```

```
#define OSX_ACOUSTIC_SL_ALGORITHM_BMPH 0x00000004
```

Detailed Description

Source Localization algorithm type.

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures	
Files	Profiling			Macros
OSX_Acoustic_SL_errors				
MIDDLEWARES » OSX_ACOUSTIC_SL »				
osxAcousticSL Exported Constants				

Source Localization errors. More...

Macros

```
#define OSX_ACOUSTIC_SL_ALGORITHM_ERROR 0x00000001  
  
#define OSX_ACOUSTIC_SL_PTR_CHANNELS_ERROR 0x000000C0  
  
#define OSX_ACOUSTIC_SL_CHANNEL_NUMBER_ERROR 0x00000000  
  
#define OSX_ACOUSTIC_SL_SAMPLING_FREQ_ERROR 0x00000000  
  
#define OSX_ACOUSTIC_SL_RESOLUTION_ERROR 0x00000010  
  
#define OSX_ACOUSTIC_SL_THRESHOLD_ERROR 0x00000020  
  
#define OSX_ACOUSTIC_SL_DISTANCE_ERROR 0x00000040  
  
#define OSX_ACOUSTIC_SL_NUM_OF_SAMPLES_ERROR 0x00000000  
  
#define OSX_ACOUSTIC_SL_LOCK_ERROR 0x80000000
```

Detailed Description

Source Localization errors.

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osxAcousticSL Software Library

Main Page

Related Pages

Modules

Data Structures

Files

Profiling

Data Structures

osxAcousticSL Exported Types

[MIDDLEWARES](#) » [OSX_ACOUSTIC_SL](#)

Data Structures

struct **osx_AcousticSL_Handler_t**

Library handler. It keeps track of the static parameters and it handles the internal state of the algorithm. [More...](#)

struct **osx_AcousticSL_Config_t**

Library dynamic configuration handler. It contains dynamic parameters. [More...](#)

Detailed Description

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
Data Structures	Data Structure Index	Data Fields	
			Data Fields

osx_AcousticSL_Handler_t Struct Reference

[MIDDLEWARES](#) » [OSX_ACOUSTIC_SL](#) » [osxAcousticSL Exported Types](#)

Library handler. It keeps track of the static parameters and it handles the internal state of the algorithm. [More...](#)

```
#include <osx_acoustic_sl.h>
```

Data Fields

uint32_t **algorithm**

uint32_t **sampling_frequency**

uint32_t **channel_number**

uint8_t **ptr_M1_channels**

uint8_t **ptr_M2_channels**

uint8_t **ptr_M3_channels**

uint8_t **ptr_M4_channels**

uint16_t **M12_distance**

uint16_t **M34_distance**

uint32_t **internal_memory_size**

uint32_t * **pInternalMemory**

int16_t **samples_to_process**

Detailed Description

Library handler. It keeps track of the static parameters and it handles the internal state of the algorithm.

Field Documentation

uint32_t algorithm

Specifies the algorithm to be used between XCORR and GCC-PHAT. This parameter can be a value of [OSX_Acoustic_SL_algorithm_type](#). Default value is OSX_ACOUSTIC_BF_TYPE_CARDIOID_BASIC

uint32_t channel_number

Specifies the number of channels, can be 2 for 180° estimation, 4 for 360° estimation. Default value is

1.

uint32_t internal_memory_size

Keeps track of the amount of memory required for the current setup. It's filled by the [osx_AcousticSL_getMemorySize\(\)](#) function and must be used to allocate the right amount of RAM

uint16_t M12_distance

Distance between Mic1 and Mic2 in decimals of a millimeter. Default value is 150.

uint16_t M34_distance

Distance between Mic3 and Mic4 in decimals of a millimeter. Default

value is 150.

uint32_t* plnternalMemory

Pointer to the memory allocated by the user

uint8_t ptr_M1_channels

Number of channels in the stream of Microphone 1. Default value is 1.

uint8_t ptr_M2_channels

Number of channels in the stream of Microphone 2. Default value is 1.

uint8_t ptr_M3_channels

Number of channels in the stream of Microphone 3. Default value is 1.

uint8_t ptr_M4_channels

Number of channels in the stream of Microphone 4. Default value is 1.

int16_t samples_to_process

Specifies the number of samples to be processed at a time

uint32_t sampling_frequency

Specifies the sampling frequency - for future use

The documentation for this struct was generated from the following file:

- D:/Documents.Repositories/DMIC/Private/Fw/OSX_Libraries/Works

osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
Data Structures	Data Structure Index	Data Fields	
			Data Fields
<h2>osx_AcousticSL_Config_t Struct Reference</h2> <p>MIDDLEWARES » OSX_ACOUSTIC_SL » osxAcousticSL Exported Types</p>			

Library dynamic configuration handler. It contains dynamic parameters.

[More...](#)

```
#include <osx_acoustic_sl.h>
```

Data Fields

`uint16_t threshold`

`uint32_t resolution`

Detailed Description

Library dynamic configuration handler. It contains dynamic parameters.

Field Documentation

uint32_t resolution

Angle resolution for the algorithms. Ignored if XCORR is used.
Default value is 4.

uint16_t threshold

Specifies a value related to a voice-activity score. With values below the threshold, the algorithm does not act. The threshold value ranges from 0 to 1000 and the default value is 24.

The documentation for this struct was generated from the following file:

- D:/Documents.Repositories/DMIC/Private/Fw/OSX_Libraries/Works
-

osxAcousticSL Software Library

Main Page

Related Pages

Modules

Data Structures

Files

Profiling

Functions

osxAcousticSL Exported Functions

[MIDDLEWARES](#) » [OSX_ACOUSTIC_SL](#)

Functions

uint32_t **osx_AcousticSL_getMemorySize**
(**osx_AcousticSL_Handler_t** *pHandler)

Fills the "internal_memory_size" of the pHandler parameter passed as argument with a value representing the right amount of memory needed by the library, depending on the specific static parameters adopted. [More...](#)

uint32_t **osx_AcousticSL_Init** (**osx_AcousticSL_Handler_t**
*pHandler)

Library initialization. [More...](#)

uint32_t **osx_AcousticSL_Data_Input** (void *pM1, void *pM2, void
*pM3, void *pM4, **osx_AcousticSL_Handler_t** *pHandler)

Library data input. [More...](#)

uint32_t **osx_AcousticSL_Process** (int32_t *Estimated_Angle,
osx_AcousticSL_Handler_t *pHandler)

Library run function, performs audio analysis when all required data has been collected. [More...](#)

uint32_t **osx_AcousticSL_setConfig** (**osx_AcousticSL_Handler_t**
*pHandler, **osx_AcousticSL_Config_t** *pConfig)

Library setup function, it sets the values for threshold and resolution. It can be called at runtime to change dynamic parameters. [More...](#)

uint32_t **osx_AcousticSL_getConfig** (**osx_AcousticSL_Handler_t**
*pHandler, **osx_AcousticSL_Config_t** *pConfig)

Fills the pConfig structure with the actual dynamic parameters as they are currently used inside the library.
[More...](#)

uint32_t **osx_AcousticSL_GetLibVersion** (char *version)

To be used to retrieve version information. [More...](#)

uint32_t **osx_AcousticSL_Initialize** (void)
Unlock the library. More...

Detailed Description

Function Documentation

```
uint32_t  
osx_AcousticSL_Data_Input( void *  
                           void *  
                           void *  
                           void *  
                           osx_AcousticSL_Handler_t * pHAnd  
                           )
```

Library data input.

Parameters

- pM1** pointer to an array that contains PCM samples (16 bit signed int) representing 1 ms of data acquired by the first channel.
- pM2** pointer to an array that contains PCM samples (16 bit signed int) representing 1 ms of data acquired by the second channel.
- pM3** pointer to an array that contains PCM samples (16 bit signed int) representing 1 ms of data acquired by the third channel.
- pM4** pointer to an array that contains PCM samples (16 bit signed int) representing 1 ms of data acquired by the fourth channel.
- pHandler** pointer to the handler of the current Source Localization instance running.

Return values

- 1 if data collection is finished and libSoundSourceLoc_Process must be called again.

be called, 0 otherwise.

Note

Input function reads samples skipping the required number of values depending on the Ptr_Mx_Channels configuration.
pM3 and pM4 are ignored in the case the library is setup for using channels.

```
uint32_t  
osx_AcousticSL_getConfig ( osx_AcousticSL_Handler_t * pHandler,  
                            osx_AcousticSL_Config_t * pConfig  
                          )
```

Fills the pConfig structure with the actual dynamic parameters as they are currently used inside the library.

Parameters

pHandler pointer to the handler of the current Source Localization instance running.
pConfig pointer to the dynamic parameters handler that will be filled with the current library configuration

Return values

0 if everything is fine.

```
uint32_t osx_AcousticSL_GetLibVersion ( char * version )
```

To be used to retrieve version information.

Parameters

version char array to be filled with the current library version

Return values

0 if everything is fine.

uint32_t

osx_AcousticSL_getMemorySize (osx_AcousticSL_Handler_t * pH

Fills the "internal_memory_size" of the pHandler parameter passed as argument with a value representing the right amount of memory needed by the library, depending on the specific static parameters adopted.

Parameters

pHandler osx_AcousticSL_Handler_t filled with desired parameters.

Return values

0 if everything is fine.

uint32_t

osx_AcousticSL_Init (osx_AcousticSL_Handler_t * pH

Library initialization.

Parameters

pHandler osx_AcousticSL_Handler_t filled with desired parameters.

Return values

0 if everything is fine. different from 0 if erroneous parameters have been passed to the Init function and the default value has been used. The specific error can be recognized by checking the relative bit in the returned word.

uint32_t osx_AcousticSL_Initialize (void)

Unlock the library.

Note

the node-locking license header must be filled with the correct values after the Open.Audio license request

Return values

0 if everything is fine.

```
uint32_t  
osx_AcousticSL_Process ( int32_t *  
                           osx_AcousticSL_Handler_t * pHandler  
                           )
```

Library run function, performs audio analysis when all required data has collected.

Parameters

Estimated_Angle pointer to the int32_t variable that will contain the computed value.

pHandler pointer to the handler of the current Source Localization instance running.

Return values

0 if everything is ok, 1 otherwise

```
uint32_t  
osx_AcousticSL_SetConfig ( osx_AcousticSL_Handler_t * pHandler  
                           osx_AcousticSL_Config_t * pConfig  
                           )
```

Library setup function, it sets the values for threshold and resolution. It can be called at runtime to change dynamic parameters.

Note

Only the threshold and resolution are evaluated by the SetConfig function.

Return values

0 if everything is fine. different from 0 if erroneous parameters have been passed to the Init function and the default value has been used. The specific error can be recognized by checking the

relative bit in the returned word.

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
Data Structures	Data Structure Index	Data Fields	

Data Structures

Here are the data structures with brief descriptions:

 osx_AcousticSL_Config_t	Library dynamic configuration handler. It contains dynamic parameters
 osx_AcousticSL_Handler_t	Library handler. It keeps track of the static parameters and it handles the internal state of the algorithm

osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
Data Structures	Data Structure Index	Data Fields	

Data Structure Index

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[**osx_AcousticSL_Handler_t**](#)

[**osx_AcousticSL_Config_t**](#)

O

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OSXAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
Data Structures		Data Structure Index	Data Fields
All	Variables		

Here is a list of all documented struct and union fields with links to the struct/union documentation for each field:

- algorithm : [`osx_AcousticSL_Handler_t`](#)
- channel_number : [`osx_AcousticSL_Handler_t`](#)
- internal_memory_size : [`osx_AcousticSL_Handler_t`](#)
- M12_distance : [`osx_AcousticSL_Handler_t`](#)
- M34_distance : [`osx_AcousticSL_Handler_t`](#)
- plnernalMemory : [`osx_AcousticSL_Handler_t`](#)
- ptr_M1_channels : [`osx_AcousticSL_Handler_t`](#)
- ptr_M2_channels : [`osx_AcousticSL_Handler_t`](#)
- ptr_M3_channels : [`osx_AcousticSL_Handler_t`](#)
- ptr_M4_channels : [`osx_AcousticSL_Handler_t`](#)
- resolution : [`osx_AcousticSL_Config_t`](#)
- samples_to_process : [`osx_AcousticSL_Handler_t`](#)
- sampling_frequency : [`osx_AcousticSL_Handler_t`](#)
- threshold : [`osx_AcousticSL_Config_t`](#)

OSXAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
Data Structures	Data Structure Index	Data Fields	
All	Variables		

- algorithm : `osx_AcousticSL_Handler_t`
- channel_number : `osx_AcousticSL_Handler_t`
- internal_memory_size : `osx_AcousticSL_Handler_t`
- M12_distance : `osx_AcousticSL_Handler_t`
- M34_distance : `osx_AcousticSL_Handler_t`
- plnternalMemory : `osx_AcousticSL_Handler_t`
- ptr_M1_channels : `osx_AcousticSL_Handler_t`
- ptr_M2_channels : `osx_AcousticSL_Handler_t`
- ptr_M3_channels : `osx_AcousticSL_Handler_t`
- ptr_M4_channels : `osx_AcousticSL_Handler_t`
- resolution : `osx_AcousticSL_Config_t`
- samples_to_process : `osx_AcousticSL_Handler_t`
- sampling_frequency : `osx_AcousticSL_Handler_t`
- threshold : `osx_AcousticSL_Config_t`

osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		

File List

Here is a list of all documented files with brief descriptions:

[detail level [1](#) [2](#) [3](#) [4](#) [5](#) [6](#)]

▼ Workspace	
▼ Middlewares	
▼ ST	
▼ STM32_OSX_AcousticSL_Library	
▼ Inc	
osx_acoustic_sl.h	This file contains OSX Sound Source Localization library definitions

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		
Workspace			

Workspace Directory Reference

Directories

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		
Workspace	Middlewares		

Middlewares Directory Reference

Directories

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		
Workspace	Middlewares	ST	

ST Directory Reference

Directories

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OSXAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		
Workspace	Middlewares	ST	STM32 OSX AcousticSL Library

STM32 OSX AcousticSL Library Directory Reference

Directories

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osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		
Workspace	Middlewares	ST	STM32 OSX_AcousticSL_Library > Inc

Inc Directory Reference

Files

file [**osx_acoustic_sl.h \[code\]**](#)

This file contains OSX Sound Source Localization library definitions.

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OSXAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		

Workspace › Middlewares › ST › STM32 OSX AcousticSL Library › Inc ›

[Data Structures](#) | [Macros](#) | [Functions](#)

osx_acoustic_si.h File Reference

This file contains OSX Sound Source Localization library definitions.
[More...](#)

```
#include "stdint.h"
```

[Go to the source code of this file.](#)

Data Structures

struct **osx_AcousticSL_Handler_t**

Library handler. It keeps track of the static parameters and it handles the internal state of the algorithm. [More...](#)

struct **osx_AcousticSL_Config_t**

Library dynamic configuration handler. It contains dynamic parameters. [More...](#)

Macros

```
#define OSX_ACOUSTIC_SL_ALGORITHM_XCORR 0x00000001  
  
#define OSX_ACOUSTIC_SL_ALGORITHM_GCCP 0x00000002  
  
#define OSX_ACOUSTIC_SL_ALGORITHM_BMPH 0x00000004  
  
#define OSX_ACOUSTIC_SL_ALGORITHM_ERROR 0x00000001  
  
#define OSX_ACOUSTIC_SL_PTR_CHANNELS_ERROR 0x00000000  
  
#define OSX_ACOUSTIC_SL_CHANNEL_NUMBER_ERROR 0x00000000  
  
#define OSX_ACOUSTIC_SL_SAMPLING_FREQ_ERROR 0x00000000  
  
#define OSX_ACOUSTIC_SL_RESOLUTION_ERROR 0x00000010  
  
#define OSX_ACOUSTIC_SL_THRESHOLD_ERROR 0x00000020  
  
#define OSX_ACOUSTIC_SL_DISTANCE_ERROR 0x00000040  
  
#define OSX_ACOUSTIC_SL_NUM_OF_SAMPLES_ERROR 0x00000000  
  
#define OSX_ACOUSTIC_SL_LOCK_ERROR 0x80000000  
  
#define OSX_ACOUSTIC_SL_NO_AUDIO_DETECTED -100
```

Functions

uint32_t **osx_AcousticSL_getMemorySize** (**osx_AcousticSL_Handler_t** *pHandler)
Fills the "internal_memory_size" of the pHandler parameter passed as argument with a value representing the right amount of memory needed by the library, depending on the specific static parameters adopted. [More...](#)

uint32_t **osx_AcousticSL_Init** (**osx_AcousticSL_Handler_t** *pHandler)
Library initialization. [More...](#)

uint32_t **osx_AcousticSL_Data_Input** (void *pM1, void *pM2, void *pM3, void *pM4, **osx_AcousticSL_Handler_t** *pHandler)
Library data input. [More...](#)

uint32_t **osx_AcousticSL_Process** (int32_t *Estimated_Angle, **osx_AcousticSL_Handler_t** *pHandler)
Library run function, performs audio analysis when all required data has been collected. [More...](#)

uint32_t **osx_AcousticSL_setConfig** (**osx_AcousticSL_Handler_t** *pHandler, **osx_AcousticSL_Config_t** *pConfig)
Library setup function, it sets the values for threshold and resolution. It can be called at runtime to change dynamic parameters. [More...](#)

uint32_t **osx_AcousticSL_getConfig** (**osx_AcousticSL_Handler_t** *pHandler, **osx_AcousticSL_Config_t** *pConfig)
Fills the pConfig structure with the actual dynamic parameters as they are currently used inside the library.
[More...](#)

uint32_t **osx_AcousticSL_GetLibVersion** (char *version)
To be used to retrieve version information. [More...](#)

uint32_t **osx_AcousticSL_Initialize** (void)
Unlock the library. More...

Detailed Description

This file contains OSX Sound Source Localization library definitions.

Author

Central Labs

Version

V1.1.0

Date

01-Sep-2016

Attention

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Some of the library code is based on the CMSIS DSP software library by ARM, a suite of common signal processing functions for use on Cortex-M processor based devices. Licencing terms are available in the attached release_note.html file, in the libSoundSourceLoc100 application note, in the next lines of this document and it's available on the web at: <http://www.keil.com/pack/doc/CMSIS/DSP/html/index.html>

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OSXAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		
All	Functions		

Here is a list of all documented functions, variables, defines, enums, and typedefs with links to the documentation:

- `osx_AcousticSL_Data_Input()` : [osx_acoustic_sl.h](#)
- `osx_AcousticSL_getConfig()` : [osx_acoustic_sl.h](#)
- `osx_AcousticSL_GetLibVersion()` : [osx_acoustic_sl.h](#)
- `osx_AcousticSL_getMemorySize()` : [osx_acoustic_sl.h](#)
- `osx_AcousticSL_Init()` : [osx_acoustic_sl.h](#)
- `osx_AcousticSL_Initialize()` : [osx_acoustic_sl.h](#)
- `osx_AcousticSL_Process()` : [osx_acoustic_sl.h](#)
- `osx_AcousticSL_setConfig()` : [osx_acoustic_sl.h](#)

OSXAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		
All	Functions		

- `osx_AcousticSL_Data_Input()` : `osx_acoustic_sl.h`
- `osx_AcousticSL_getConfig()` : `osx_acoustic_sl.h`
- `osx_AcousticSL_GetLibVersion()` : `osx_acoustic_sl.h`
- `osx_AcousticSL_getMemorySize()` : `osx_acoustic_sl.h`
- `osx_AcousticSL_Init()` : `osx_acoustic_sl.h`
- `osx_AcousticSL_Initialize()` : `osx_acoustic_sl.h`
- `osx_AcousticSL_Process()` : `osx_acoustic_sl.h`
- `osx_AcousticSL_setConfig()` : `osx_acoustic_sl.h`

osxAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		

Related Pages

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OSXAcousticSL Software Library

Main Page	Related Pages	Modules	Data Structures
Files	Profiling		
File List	Globals		
Workspace	Middlewares	ST	STM32 OSX_AcousticSL_Library > Inc

osx_acoustic_sl.h

Go to the documentation of this file.

```
1
55 /* Define to prevent recursive inclusion ---
   -----
56 #ifndef __OSX_ACOUSTIC_SL_H
57 #define __OSX_ACOUSTIC_SL_H
58
59 #include "stdint.h"
60
61 /* Includes -----
   -----
62 /* Exported types -----
   -----
63 /* Exported constants -----
   -----
64 /* Exported macro -----
   -----
65 /* Exported define -----
   -----
66 /* Exported functions -----
   -----
67
84 #define OSX_ACOUSTIC_SL_ALGORITHM_XCORR
     0x00000001
85 #define OSX_ACOUSTIC_SL_ALGORITHM_GCCP
```

```
    0x00000002
86 | #define OSX_ACOUSTIC_SL_ALGORITHM_BMPH
  0x00000004
87 |
95 | #define OSX_ACOUSTIC_SL_ALGORITHM_ERROR
  0x00000001
96 | #define OSX_ACOUSTIC_SL_PTR_CHANNELS_ERROR
  0x00000002
97 | #define OSX_ACOUSTIC_SL_CHANNEL_NUMBER_ERROR
  0x00000004
98 | #define OSX_ACOUSTIC_SL_SAMPLING_FREQ_ERROR
  0x00000008
99 | #define OSX_ACOUSTIC_SL_RESOLUTION_ERROR
  0x00000010
100 | #define OSX_ACOUSTIC_SL_THRESHOLD_ERROR
  0x00000020
101 | #define OSX_ACOUSTIC_SL_DISTANCE_ERROR
  0x00000040
102 | #define OSX_ACOUSTIC_SL_NUM_OF_SAMPLES_ERROR
  0x00000080
103 | #define OSX_ACOUSTIC_SL_LOCK_ERROR
  0x80000000
104 |
107 | #define OSX_ACOUSTIC_SL_NO_AUDIO_DETECTED
 -100
108 |
119 | typedef struct
120 |
121 |     uint32_t algorithm;
124 |     uint32_t sampling_frequency;
126 |     uint32_t channel_number;
128 |     uint8_t ptr_M1_channels;
129 |     uint8_t ptr_M2_channels;
130 |     uint8_t ptr_M3_channels;
131 |     uint8_t ptr_M4_channels;
133 |     uint16_t M12_distance;
134 |     uint16_t M34_distance;
```

```
136     uint32_t internal_memory_size;
139     uint32_t * pInternalMemory;
140     int16_t samples_to_process;
142 } osx_AcousticSL_Handler_t;
143
147 typedef struct
148 {
149     uint16_t threshold;
150     uint32_t resolution;
151 } osx_AcousticSL_Config_t;
152
153
167 uint32_t
168     osx_AcousticSL_getMemorySize(osx_AcousticSL_Ha
169         ndler_t * pHandler);
170
176 uint32_t
177     osx_AcousticSL_Init(osx_AcousticSL_Handler_t *
178         pHandler);
179
193 uint32_t osx_AcousticSL_Data_Input(void
194     *pM1, void *pM2, void *pM3, void *pM4,
195     osx_AcousticSL_Handler_t * pHandler);
196
201 uint32_t osx_AcousticSL_Process(int32_t *
202     Estimated_Angle, osx_AcousticSL_Handler_t *
203     pHandler);
204
211 uint32_t
212     osx_AcousticSL_setConfig(osx_AcousticSL_Handle
213         r_t * pHandler, osx_AcousticSL_Config_t *
214         pConfig);
215
219 uint32_t
220     osx_AcousticSL_getConfig(osx_AcousticSL_Handle
221         r_t * pHandler, osx_AcousticSL_Config_t *
222         pConfig);
```

```
220
226 uint32_t osx_AcousticSL_GetLibVersion(char
 *version);
227
233 uint32_t osx_AcousticSL_Initialize(void);
234
245 #endif /* __OSX_ACOUSTIC_SL_H */
246
247 /***** (C) COPYRIGHT 2010
STMicroelectronics *****END OF FILE****/
```