

MotionFA Software Library

MotionFA Software Library Documentation

[Main Page](#)[Modules](#)[Data Structures](#)[Files](#)

Modules

Here is a list of all modules:

[detail level 1 2 3]

▼ MIDDLEWARES

▼ MOTION_FA

[MOTION_FA_Exported_Types](#)

[MOTION_FA_Exported_Functions](#)

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MotionFA Software Library

MotionFA Software Library Documentation

[Main Page](#)

[Modules](#)

[Data Structures](#)

[Files](#)

[Modules](#)

MIDDLEWARES

Modules

MOTION_FA

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MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
MOTION_FA				Modules
MIDDLEWARES				

Modules

MOTION_FA_Exported_Types

MOTION_FA_Exported_Functions

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MotionFA Software Library

MotionFA Software Library Documentation

[Main Page](#)

[Modules](#)

[Data Structures](#)

[Files](#)

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

MOTION_FA_Exported_Types

[MIDDLEWARES](#) » [MOTION_FA](#)

Data Structures

```
struct MFA_input_t
```

```
struct MFA_output_t
```

Macros

```
#define NUM_FA_ACTIVITIES 3
```

Enumerations

```
enum MFA_activity_t { MFA_NOACTIVITY = 0x00,  
MFA_BICEPCURL = 0x01, MFA_SQUAT = 0x02 }
```

Detailed Description

Macro Definition Documentation

#define NUM_FA_ACTIVITIES 3

Definition at line **62** of file **motion_fa.h**.

Enumeration Type Documentation

enum MFA_activity_t

Enumerator	
MFA_NOACTIVITY	
MFA_BICEPCURL	
MFA_SQUAT	

Definition at line **73** of file **motion_fa.h**.

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
Data Structures	Data Structure Index	Data Fields		

[Data Fields](#)

MFA_input_t Struct Reference

[MIDDLEWARES](#) » [MOTION_FA](#) »
[MOTION_FA_Exported_Types](#)

```
#include <motion_fa.h>
```

Data Fields

float **AccX**

float **AccY**

float **AccZ**

float **Press**

Detailed Description

Definition at line **65** of file **motion_fa.h**.

Field Documentation

float AccX

Definition at line **67** of file [motion_fa.h](#).

float AccY

Definition at line **68** of file [motion_fa.h](#).

float AccZ

Definition at line **69** of file [motion_fa.h](#).

float Press

Definition at line **70** of file [motion_fa.h](#).

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

- [algorithms/Middlewares/ST/STM32_MotionFA_Library/Inc/motion_f](#)

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
Data Structures	Data Structure Index	Data Fields		

[Data Fields](#)

MFA_output_t Struct Reference

[MIDDLEWARES](#) » [MOTION_FA](#) »
[MOTION_FA_Exported_Types](#)

```
#include <motion_fa.h>
```

Data Fields

uint32_t **Counter**

Detailed Description

Definition at line **80** of file **motion_fa.h**.

Field Documentation

uint32_t Counter

Definition at line **81** of file **motion_fa.h**.

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

- algorithms/Middlewares/ST/STM32_MotionFA_Library/Inc/**motion_f**

MotionFA Software Library

MotionFA Software Library Documentation

[Main Page](#)

[Modules](#)

[Data Structures](#)

[Files](#)

[Functions](#)

MOTION_FA_Exported_Functions

[MIDDLEWARES](#) » [MOTION_FA](#)

Functions

void **MotionFA_Initialize** (void)
Initialize the MotionFA engine. [More...](#)

void **MotionFA_SetOrientation_Acc** (const char *acc_orientation)
Set the MotionFA accelerometer data orientation. [More...](#)

void **MotionFA_BicepCurl_Update** (MFA_input_t *data_in,
MFA_output_t *data_out)
Run bicep curl counter. [More...](#)

void **MotionFA_Squat_Update** (MFA_input_t *data_in,
MFA_output_t *data_out)
Run squat counter. [More...](#)

void **MotionFA_BicepCurl_Reset** (void)
Reset bicep curl counter. [More...](#)

void **MotionFA_Squat_Reset** (void)
Reset squat counter. [More...](#)

uint8_t **MotionFA_GetLibVersion** (char *version)
Get the library version. [More...](#)

Detailed Description

Function Documentation

void MotionFA_BicepCurl_Reset (void)

Reset bicep curl counter.

Parameters

none

Return values

none

**void MotionFA_BicepCurl_Update (MFA_input_t * data_in,
MFA_output_t * data_out
)**

Run bicep curl counter.

Parameters

data_in pointer to accaleration in [g] and atmospheric pressure in [hPa]

data_out pointer to bicep curl counter

Return values

none

uint8_t MotionFA_GetLibVersion (char * version)

Get the library version.

Parameters

version pointer to an array of 35 char

Return values

Number of characters in the version string

void MotionFA_Initialize (void)

Initialize the MotionFA engine.

Parameters

none

Return values

none

**void
MotionFA_SetOrientation_Acc (const char * **acc_orientation**)**

Set the MotionFA accelerometer data orientation.

Parameters

***acc_orientation** reference system of the accelerometer raw data (for instance: south west up became "swu", north east up became "ned")

Return values

none

void MotionFA_Squat_Reset (void)

Reset squat counter.

Parameters

none

Return values

none

```
void MotionFA_Squat_Update ( MFA_input_t* data_in,  
                             MFA_output_t* data_out  
                             )
```

Run squat counter.

Parameters

data_in pointer to accaleration in [g] and atmospheric pressure in [hPa]

data_out pointer to squat counter

Return values

none

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
Data Structures	Data Structure Index	Data Fields		

Data Structures

Here are the data structures with brief descriptions:

MFA_input_t	
MFA_output_t	

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
Data Structures	Data Structure Index	Data Fields		

Data Structure Index

M

M

[MFA_output_t](#)

[MFA_input_t](#)

M

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MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
Data Structures	Data Structure Index	Data Fields		
All	Variables			

Here is a list of all struct and union fields with links to the structures/unions they belong to:

- AccX : [MFA_input_t](#)
- AccY : [MFA_input_t](#)
- AccZ : [MFA_input_t](#)
- Counter : [MFA_output_t](#)
- Press : [MFA_input_t](#)

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
Data Structures	Data Structure Index	Data Fields		
All	Variables			

- AccX : [MFA_input_t](#)
- AccY : [MFA_input_t](#)
- AccZ : [MFA_input_t](#)
- Counter : [MFA_output_t](#)
- Press : [MFA_input_t](#)

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files
File List	Globals		

File List

Here is a list of all files with brief descriptions:

[detail level 1 2 3 4 5 6]

▼  algorithms	
▼  Middlewareas	
▼  ST	
▼  STM32_MotionFA_Library	
▼  Inc	
 motion_fa.h	Header for motion_fa module

MotionFA Software Library

MotionFA Software Library Documentation

[Main Page](#)

[Modules](#)

[Data Structures](#)

[Files](#)

[algorithms](#) >

algorithms Directory Reference

Directories

directory **Middleware**s

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MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
algorithms	Middlewares			

Middlewares Directory Reference

Directories

directory **ST**

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MotionFA Software Library

MotionFA Software Library Documentation

[Main Page](#)

[Modules](#)

[Data Structures](#)

[Files](#)

[algorithms](#)

[Middlewares](#)

[ST](#)

ST Directory Reference

Directories

directory **STM32_MotionFA_Library**

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MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
algorithms	Middlewares	ST	STM32_MotionFA_Library	

STM32_MotionFA_Library Directory Reference

Directories

directory **Inc**

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MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
algorithms	Middlewares	ST	STM32_MotionFA_Library	Inc

Inc Directory Reference

Files

file **motion_fa.h** [code]
Header for motion_fa module.

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
File List	Globals			
algorithms	Middlewares	ST	STM32_MotionFA_Library	Inc

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

motion_fa.h File Reference

Header for motion_fa module. [More...](#)

```
#include <stdint.h>
```

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

Data Structures

struct **MFA_input_t**

struct **MFA_output_t**

Macros

```
#define NUM_FA_ACTIVITIES 3
```

Enumerations

```
enum MFA_activity_t { MFA_NOACTIVITY = 0x00,  
MFA_BICEPCURL = 0x01, MFA_SQUAT = 0x02 }
```

Functions

void **MotionFA_Initialize** (void)
Initialize the MotionFA engine. [More...](#)

void **MotionFA_SetOrientation_Acc** (const char *acc_orientation)
Set the MotionFA accelerometer data orientation. [More...](#)

void **MotionFA_BicepCurl_Update** (MFA_input_t *data_in,
MFA_output_t *data_out)
Run bicep curl counter. [More...](#)

void **MotionFA_Squat_Update** (MFA_input_t *data_in,
MFA_output_t *data_out)
Run squat counter. [More...](#)

void **MotionFA_BicepCurl_Reset** (void)
Reset bicep curl counter. [More...](#)

void **MotionFA_Squat_Reset** (void)
Reset squat counter. [More...](#)

uint8_t **MotionFA_GetLibVersion** (char *version)
Get the library version. [More...](#)

Detailed Description

Header for motion_fa module.

Author

MEMS Application Team

Version

V1.0.0

Date

01-May-2017

| Attention

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Definition in file [motion_fa.h](#).

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
File List	Globals			
All	Functions	Enumerations	Enumerator	Macros

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

- MFA_activity_t : [motion_fa.h](#)
- MFA_BICEPCURL : [motion_fa.h](#)
- MFA_NOACTIVITY : [motion_fa.h](#)
- MFA_SQUAT : [motion_fa.h](#)
- MotionFA_BicepCurl_Reset() : [motion_fa.h](#)
- MotionFA_BicepCurl_Update() : [motion_fa.h](#)
- MotionFA_GetLibVersion() : [motion_fa.h](#)
- MotionFA_Initialize() : [motion_fa.h](#)
- MotionFA_SetOrientation_Acc() : [motion_fa.h](#)
- MotionFA_Squat_Reset() : [motion_fa.h](#)
- MotionFA_Squat_Update() : [motion_fa.h](#)
- NUM_FA_ACTIVITIES : [motion_fa.h](#)

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
File List	Globals			
All	Functions	Enumerations	Enumerator	Macros

- [MotionFA_BicepCurl_Reset\(\)](#) : [motion_fa.h](#)
- [MotionFA_BicepCurl_Update\(\)](#) : [motion_fa.h](#)
- [MotionFA_GetLibVersion\(\)](#) : [motion_fa.h](#)
- [MotionFA_Initialize\(\)](#) : [motion_fa.h](#)
- [MotionFA_SetOrientation_Acc\(\)](#) : [motion_fa.h](#)
- [MotionFA_Squat_Reset\(\)](#) : [motion_fa.h](#)
- [MotionFA_Squat_Update\(\)](#) : [motion_fa.h](#)

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
File List	Globals			
All	Functions	Enumerations	Enumerator	Macros

- MFA_activity_t : [motion_fa.h](#)

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
File List	Globals			
All	Functions	Enumerations	Enumerator	Macros

- MFA_BICEPCURL : [motion_fa.h](#)
- MFA_NOACTIVITY : [motion_fa.h](#)
- MFA_SQUAT : [motion_fa.h](#)

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MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files	
File List	Globals			
All	Functions	Enumerations	Enumerator	Macros

- NUM_FA_ACTIVITIES : [motion_fa.h](#)

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1.8.9.1

MotionFA Software Library

MotionFA Software Library Documentation

Main Page	Modules	Data Structures	Files
File List	Globals		
algorithms	Middlewares	ST	STM32_MotionFA_Library
		Inc	

motion_fa.h

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

```
1
38 /* Define to prevent recursive inclusion ---
----- */
39 #ifndef _MOTION_FA_H_
40 #define _MOTION_FA_H_
41
42 #ifdef __cplusplus
43 extern "C" {
44 #endif
45
46 /* Includes -----
----- */
47 #include <stdint.h>
48
61 /* Exported constants -----
----- */
62 #define NUM_FA_ACTIVITIES 3
63
64 /* Exported types -----
----- */
65 typedef struct
66 {
67     float AccX;          /* Acceleration in X
axis in [g] */
68     float AccY;          /* Acceleration in Y
```

```

    axis in [g] */
69 |     float AccZ;                /* Acceleration in Z
    axis in [g] */
70 |     float Press;              /* Atmospheric
    pressure in [hPa] */
71 | } MFA_input_t;
72 |
73 | typedef enum
74 | {
75 |     MFA_NOACTIVITY            = 0x00,
76 |     MFA_BICEPCURL             = 0x01,
77 |     MFA_SQUAT                 = 0x02
78 | } MFA_activity_t;
79 |
80 | typedef struct {
81 |     uint32_t Counter;
82 | } MFA_output_t;
83 |
88 | /* Exported variables -----
    ----- */
89 | /* Exported macro -----
    ----- */
90 |
95 | /* Exported functions -----
    ----- */
96 |
102 | void MotionFA_Initialize(void);
103 |
109 | void MotionFA_SetOrientation_Acc(const char
    *acc_orientation);
110 |
117 | void MotionFA_BicepCurl_Update(MFA_input_t
    *data_in, MFA_output_t *data_out);
118 |
125 | void MotionFA_Squat_Update(MFA_input_t
    *data_in, MFA_output_t *data_out);
126 |

```

```
132 void MotionFA_BicepCurl_Reset(void);
133
139 void MotionFA_Squat_Reset(void);
140
146 uint8_t MotionFA_GetLibVersion(char
    *version);
147
148
161 #ifdef __cplusplus
162 }
163 #endif
164
165 #endif /* _MOTION_FA_H_ */
166
167 /***** (C) COPYRIGHT
    STMicroelectronics *****/
```