

AC784xx_DFP MPU

7.1.0

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Chapter 1

Class Index

1.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

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Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

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Chapter 3

Class Documentation

3.1 Mpu_ConfigType Struct Reference

MPU Region range and attribute.

```
#include <Mpu_Hal.h>
```

Public Attributes

- uint8 [ModuleConfigCnt](#)
- const [Mpu_ModuleConfigType](#) * [ModuleConfig](#)

3.1.1 Detailed Description

MPU Region range and attribute.

Definition at line 134 of file Mpu_Hal.h.

3.1.2 Member Data Documentation

3.1.2.1 ModuleConfig

```
const Mpu\_ModuleConfigType* Mpu_ConfigType::ModuleConfig
```

mpu module configure pointer

Definition at line 137 of file Mpu_Hal.h.

3.1.2.2 ModuleConfigCnt

```
uint8 Mpu_ConfigType::ModuleConfigCnt
```

configuration module count

Definition at line 136 of file Mpu_Hal.h.

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

- [Mpu_Hal.h](#)

3.2 Mpu_ErrorInfoType Struct Reference

MPU Error Information structure.

```
#include <Mpu_Hal.h>
```

Public Attributes

- uint32 [Addr](#)
- uint32 [ErrorInfoal](#)

3.2.1 Detailed Description

MPU Error Information structure.

Definition at line 75 of file Mpu_Hal.h.

3.2.2 Member Data Documentation

3.2.2.1 Addr

```
uint32 Mpu_ErrorInfoType::Addr
```

error address

Definition at line 77 of file Mpu_Hal.h.

3.2.2.2 ErrorInfoal

```
uint32 Mpu_ErrorInfoType::ErrorInfoal
```

error information

Definition at line 78 of file Mpu_Hal.h.

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

- [Mpu_Hal.h](#)

3.3 Mpu_ModuleConfigType Struct Reference

MPU configuration structure.

```
#include <Mpu_Hal.h>
```

Public Attributes

- uint8 [RegionConfigCnt](#)
- Mpu_IdType [MpuId](#)
- const [Mpu_RegionConfigType](#) * [RegionConfig](#)

3.3.1 Detailed Description

MPU configuration structure.

Definition at line 119 of file Mpu_Hal.h.

3.3.2 Member Data Documentation

3.3.2.1 MpuId

```
Mpu_IdType Mpu_ModuleConfigType::MpuId
```

Mpu module id

Definition at line 122 of file Mpu_Hal.h.

3.3.2.2 RegionConfig

```
const Mpu_RegionConfigType* Mpu_ModuleConfigType::RegionConfig
```

mpu module configure pointer

Definition at line 126 of file Mpu_Hal.h.

3.3.2.3 RegionConfigCnt

```
uint8 Mpu_ModuleConfigType::RegionConfigCnt
```

configuration region count

Definition at line 121 of file Mpu_Hal.h.

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

- [Mpu_Hal.h](#)

3.4 Mpu_RegionAddrConfigType Struct Reference

MPU Region range and attribute.

```
#include <Mpu_Hal.h>
```

Public Attributes

- uint32 [StartAddr](#)
- uint32 [EndAddr](#)

3.4.1 Detailed Description

MPU Region range and attribute.

Definition at line 65 of file Mpu_Hal.h.

3.4.2 Member Data Documentation

3.4.2.1 EndAddr

```
uint32 Mpu_RegionAddrConfigType::EndAddr
```

region end address

Definition at line 68 of file Mpu_Hal.h.

3.4.2.2 StartAddr

```
uint32 Mpu_RegionAddrConfigType::StartAddr
```

region start address

Definition at line 67 of file Mpu_Hal.h.

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

- [Mpu_Hal.h](#)

3.5 Mpu_RegionAttrsType Struct Reference

MPU region attributes.

```
#include <Mpu_Hal.h>
```

Public Attributes

- uint32 [Permission](#)

3.5.1 Detailed Description

MPU region attributes.

Definition at line 85 of file Mpu_Hal.h.

3.5.2 Member Data Documentation

3.5.2.1 Permission

```
uint32 Mpu_RegionAttrsType::Permission
```

region permission

Definition at line 92 of file Mpu_Hal.h.

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

- [Mpu_Hal.h](#)

3.6 Mpu_RegionConfigType Struct Reference

MPU Region range and attribute.

```
#include <Mpu_Hal.h>
```

Public Attributes

- Mpu_RegionIdType [RegionId](#)
- Mpu_RegionParamsType [RegionParams](#)

3.6.1 Detailed Description

MPU Region range and attribute.

Definition at line 108 of file Mpu_Hal.h.

3.6.2 Member Data Documentation

3.6.2.1 RegionId

```
Mpu_RegionIdType Mpu_RegionConfigType::RegionId
```

Mpu Region num

Definition at line 110 of file Mpu_Hal.h.

3.6.2.2 RegionParams

```
Mpu_RegionParamsType Mpu_RegionConfigType::RegionParams
```

region attributes pointer

Definition at line 111 of file Mpu_Hal.h.

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

- [Mpu_Hal.h](#)

3.7 Mpu_RegionParamsType Struct Reference

MPU Region range and attribute.

```
#include <Mpu_Hal.h>
```

Public Attributes

- Mpu_RegionAddrConfigType [Addr](#)
- Mpu_RegionAttrsType [Attrs](#)

3.7.1 Detailed Description

MPU Region range and attribute.

Definition at line 98 of file Mpu_Hal.h.

3.7.2 Member Data Documentation

3.7.2.1 Addr

[Mpu_RegionAddrConfigType](#) Mpu_RegionParamsType::Addr

Definition at line 100 of file Mpu_Hal.h.

3.7.2.2 Attrs

[Mpu_RegionAttrsType](#) Mpu_RegionParamsType::Attrs

region attributes pointer

Definition at line 101 of file Mpu_Hal.h.

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

- [Mpu_Hal.h](#)

Chapter 4

File Documentation

4.1 AC784xx_API_Reference_Manual_MPU.pdf File Reference

4.2 AC784xx_Mpu_Reg.h File Reference

This file provides extern Low level Mpu register api.

```
#include "Device_Register.h"
```

Functions

- LOCAL_INLINE void [Mpu_Reg_Enable](#) (uint8 Mpuldx)
Enable MPU.
- LOCAL_INLINE void [Mpu_Reg_Disable](#) (uint8 Mpuldx)
Disable MPU.
- LOCAL_INLINE uint32 [Mpu_Reg_GetStatus](#) (uint8 Mpuldx)
Get the MPU error status.
- LOCAL_INLINE void [Mpu_Reg_ClearStatus](#) (uint8 Mpuldx, uint32 Status)
Clear the MPU error status.
- LOCAL_INLINE uint32 [Mpu_Reg_GetErrorAddr](#) (uint8 Mpuldx, uint8 PortIdx)
Get the MPU port error address.
- LOCAL_INLINE uint32 [Mpu_Reg_GetErrorInfo](#) (uint8 Mpuldx, uint8 PortIdx)
Get the MPU port error information.
- LOCAL_INLINE void [Mpu_Reg_ClearErrorInfo](#) (uint8 Mpuldx, uint8 PortIdx)
Clear the MPU port error information.
- LOCAL_INLINE void [Mpu_Reg_SetMasterPid](#) (uint8 Mpuldx, uint8 MasterNum, uint8 Pid)
Set the MPU master PID.
- LOCAL_INLINE uint8 [Mpu_Reg_GetMasterPid](#) (uint8 Mpuldx, uint8 MasterNum)
Get the MPU master PID.
- LOCAL_INLINE void [Mpu_Reg_SetRegionStartAddr](#) (uint8 Mpuldx, uint8 RegionIdx, uint32 Addr)
Set the MPU region start address.
- LOCAL_INLINE uint32 [Mpu_Reg_GetRegionStartAddr](#) (uint8 Mpuldx, uint8 RegionIdx)
Get the MPU region start address.
- LOCAL_INLINE void [Mpu_Reg_SetRegionEndAddr](#) (uint8 Mpuldx, uint8 RegionIdx, uint32 Addr)
Set the MPU region end address.

- LOCAL_INLINE uint32 [Mpu_Reg_GetRegionEndAddr](#) (uint8 Mpuldx, uint8 RegionIdx)
Get the MPU region end address.
- LOCAL_INLINE void [Mpu_Reg_SetRegionAttrs](#) (uint8 Mpuldx, uint8 RegionIdx, uint32 Attrs)
Set the MPU region attributes.
- LOCAL_INLINE uint32 [Mpu_Reg_GetRegionAttrs](#) (uint8 Mpuldx, uint8 RegionIdx)
Set the MPU region attributes.
- LOCAL_INLINE void [Mpu_Reg_SetRegionPid](#) (uint8 Mpuldx, uint8 RegionIdx, uint8 Pid, uint8 PidMask)
Set the MPU region pid.
- LOCAL_INLINE uint32 [Mpu_Reg_GetRegionPid](#) (uint8 Mpuldx, uint8 RegionIdx)
Set the MPU region pid.
- LOCAL_INLINE void [Mpu_Reg_EnableRegion](#) (uint8 Mpuldx, uint8 RegionIdx, boolean En)
Enable the MPU region.
- LOCAL_INLINE void [Mpu_Reg_EnableRegionPid](#) (uint8 Mpuldx, uint8 RegionIdx, uint8 MasterNum)
Enable the MPU region PID.
- LOCAL_INLINE void [Mpu_Reg_DisableRegionPid](#) (uint8 Mpuldx, uint8 RegionIdx, uint8 MasterNum)
Disable the MPU region PID.
- LOCAL_INLINE void [Mpu_Reg_SetRegionACCAAttrs](#) (uint8 Mpuldx, uint8 RegionIdx, uint32 Attrs)
Set the MPU region attributes.
- LOCAL_INLINE uint32 [Mpu_Reg_GetRegionACCAAttrs](#) (uint8 Mpuldx, uint8 RegionIdx)
Set the MPU region attributes.
- LOCAL_INLINE uint32 [Mpu_Reg_GetmpuEnable](#) (uint8 Mpuldx)
Disable the MPU region PID.

4.2.1 Detailed Description

This file provides extern Low level Mpu register api.

4.2.2 Function Documentation

4.2.2.1 Mpu_Reg_ClearErrorInfo()

```
LOCAL_INLINE void Mpu_Reg_ClearErrorInfo (
    uint8 MpuIdx,
    uint8 PortIdx )
```

Clear the MPU port error information.

Note

Function ID: DES_MPU_API_307

Parameters

in	<i>Mpuldx</i>	MPU number, 0~1.
in	<i>PortIdx</i>	MPU Slave port number.

Returns

void

Definition at line 143 of file AC784xx_Mpu_Reg.h.

4.2.2.2 Mpu_Reg_ClearStatus()

```
LOCAL_INLINE void Mpu_Reg_ClearStatus (
    uint8  MpuIdx,
    uint32 Status )
```

Clear the MPU error status.

Note

Function ID: DES_MPU_API_304

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>Status</i>	the MPU error status.

Returns

void

Definition at line 107 of file AC784xx_Mpu_Reg.h.

4.2.2.3 Mpu_Reg_Disable()

```
LOCAL_INLINE void Mpu_Reg_Disable (
    uint8 MpuIdx )
```

Disable MPU.

Note

Function ID: DES_MPU_API_302

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
----	---------------	------------------

Returns

void

Definition at line 84 of file AC784xx_Mpu_Reg.h.

4.2.2.4 Mpu_Reg_DisableRegionPid()

```
LOCAL_INLINE void Mpu_Reg_DisableRegionPid (
    uint8 MpuIdx,
    uint8 RegionIdx,
    uint8 MasterNum )
```

Disable the MPU region PID.

Note

Function ID: DES_MPU_API_321

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.
in	<i>MasterNum</i>	MPU Master number

Returns

void

Definition at line 310 of file AC784xx_Mpu_Reg.h.

4.2.2.5 Mpu_Reg_Enable()

```
LOCAL_INLINE void Mpu_Reg_Enable (
    uint8 MpuIdx )
```

Enable MPU.

Note

Function ID: DES_MPU_API_301

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
----	---------------	------------------

Returns

void

Definition at line 73 of file AC784xx_Mpu_Reg.h.

4.2.2.6 Mpu_Reg_EnableRegion()

```
LOCAL_INLINE void Mpu_Reg_EnableRegion (
    uint8 MpuIdx,
    uint8 RegionIdx,
    boolean En )
```

Enable the MPU region.

Note

Function ID: DES_MPU_API_318

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.
in	<i>En</i>	0 disable 1:enable

Returns

none

Definition at line 284 of file AC784xx_Mpu_Reg.h.

4.2.2.7 Mpu_Reg_EnableRegionPid()

```
LOCAL_INLINE void Mpu_Reg_EnableRegionPid (
    uint8 MpuIdx,
    uint8 RegionIdx,
    uint8 MasterNum )
```

Enable the MPU region PID.

Note

Function ID: DES_MPU_API_320

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.
in	<i>MasterNum</i>	MPU Master number

Returns

void

Definition at line 297 of file AC784xx_Mpu_Reg.h.

4.2.2.8 Mpu_Reg_GetErrorAddr()

```
LOCAL_INLINE uint32 Mpu_Reg_GetErrorAddr (
    uint8 MpuIdx,
    uint8 PortIdx )
```

Get the MPU port error address.

Note

Function ID: DES_MPU_API_305

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>PortIdx</i>	MPU Slave port number.

Returns

uint32: MPU error address.

Definition at line 119 of file AC784xx_Mpu_Reg.h.

4.2.2.9 Mpu_Reg_GetErrorInfo()

```
LOCAL_INLINE uint32 Mpu_Reg_GetErrorInfo (
    uint8 MpuIdx,
    uint8 PortIdx )
```

Get the MPU port error information.

Note

Function ID: DES_MPU_API_306

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>PortIdx</i>	MPU Slave port number.

Returns

uint32: MPU error information.

Definition at line 131 of file AC784xx_Mpu_Reg.h.

4.2.2.10 Mpu_Reg_GetMasterPid()

```
LOCAL_INLINE uint8 Mpu_Reg_GetMasterPid (
    uint8 MpuIdx,
    uint8 MasterNum )
```

Get the MPU master PID.

Note

Function ID: DES_MPU_API_309

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>MasterNum</i>	MPU amster number

Returns

uint8: master Pid

Definition at line 170 of file AC784xx_Mpu_Reg.h.

4.2.2.11 Mpu_Reg_GetmpuEnable()

```
LOCAL_INLINE uint32 Mpu_Reg_GetmpuEnable (
    uint8 MpuIdx )
```

Disable the MPU region PID.

Note

Function ID: DES_MPU_API_324

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
----	---------------	------------------

Returns

uint32: 0:disable 1:enable

Definition at line 346 of file AC784xx_Mpu_Reg.h.

4.2.2.12 Mpu_Reg_GetRegionACCAattrs()

```
LOCAL_INLINE uint32 Mpu_Reg_GetRegionACCAattrs (
    uint8 MpuIdx,
    uint8 RegionIdx )
```

Set the MPU region attributes.

Note

Function ID: DES_MPU_API_323

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.

Returns

uint32: attributes.

Definition at line 335 of file AC784xx_Mpu_Reg.h.

4.2.2.13 Mpu_Reg_GetRegionAttrs()

```
LOCAL_INLINE uint32 Mpu_Reg_GetRegionAttrs (
    uint8 MpuIdx,
    uint8 RegionIdx )
```

Set the MPU region attributes.

Note

Function ID: DES_MPU_API_315

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.

Returns

uint32 : region attributes

Definition at line 245 of file AC784xx_Mpu_Reg.h.

4.2.2.14 Mpu_Reg_GetRegionEndAddr()

```
LOCAL_INLINE uint32 Mpu_Reg_GetRegionEndAddr (
    uint8 MpuIdx,
    uint8 RegionIdx )
```

Get the MPU region end address.

Note

Function ID: DES_MPU_API_313

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.

Returns

uint32 : MPU region end address.

Definition at line 220 of file AC784xx_Mpu_Reg.h.

4.2.2.15 Mpu_Reg_GetRegionPid()

```
LOCAL_INLINE uint32 Mpu_Reg_GetRegionPid (
    uint8 MpuIdx,
    uint8 RegionIdx )
```

Set the MPU region pid.

Note

Function ID: DES_MPU_API_317

Parameters

in	<i>MpuIdx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.

Returns

uint32: region pid

Definition at line 271 of file AC784xx_Mpu_Reg.h.

4.2.2.16 Mpu_Reg_GetRegionStartAddr()

```
LOCAL_INLINE uint32 Mpu_Reg_GetRegionStartAddr (
    uint8 MpuIdx,
    uint8 RegionIdx )
```

Get the MPU region start address.

Note

Function ID: DES_MPU_API_311

Parameters

in	<i>Mpuidx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.

Returns

uint32 : MPU region start address.

Definition at line 195 of file AC784xx_Mpu_Reg.h.

4.2.2.17 Mpu_Reg_GetStatus()

```
LOCAL_INLINE uint32 Mpu_Reg_GetStatus (
    uint8 MpuIdx )
```

Get the MPU error status.

Note

Function ID: DES_MPU_API_303

Parameters

in	<i>Mpuidx</i>	MPU number, 0~1.
----	---------------	------------------

Returns

uint32 : MPU error status.

Definition at line 95 of file AC784xx_Mpu_Reg.h.

4.2.2.18 Mpu_Reg_SetMasterPid()

```
LOCAL_INLINE void Mpu_Reg_SetMasterPid (
    uint8 MpuIdx,
    uint8 MasterNum,
    uint8 Pid )
```

Set the MPU master PID.

Note

Function ID: DES_MPU_API_308

Parameters

in	<i>Mpuidx</i>	MPU number, 0~1.
in	<i>MasterNum</i>	MPU amster number
in	<i>Pid</i>	pid value

Returns

void

Definition at line 156 of file AC784xx_Mpu_Reg.h.

4.2.2.19 Mpu_Reg_SetRegionACCAAttrs()

```
LOCAL_INLINE void Mpu_Reg_SetRegionACCAAttrs (
    uint8 Mpuidx,
    uint8 RegionIdx,
    uint32 Attrs )
```

Set the MPU region attributes.

Note

Function ID: DES_MPU_API_322

Parameters

in	<i>Mpuidx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.
in	<i>Attrs</i>	attributes.

Returns

void

Definition at line 323 of file AC784xx_Mpu_Reg.h.

4.2.2.20 Mpu_Reg_SetRegionAttrs()

```
LOCAL_INLINE void Mpu_Reg_SetRegionAttrs (
    uint8 Mpuidx,
    uint8 RegionIdx,
    uint32 Attrs )
```

Set the MPU region attributes.

Note

Function ID: DES_MPU_API_314

Parameters

in	<i>Mpuidx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.
in	<i>Attrs</i>	region attributes.

Returns

none

Definition at line 233 of file AC784xx_Mpu_Reg.h.

4.2.2.21 Mpu_Reg_SetRegionEndAddr()

```
LOCAL_INLINE void Mpu_Reg_SetRegionEndAddr (
    uint8 Mpuidx,
    uint8 RegionIdx,
    uint32 Addr )
```

Set the MPU region end address.

Note

Function ID: DES_MPU_API_312

Parameters

in	<i>Mpuidx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.
in	<i>Addr</i>	region end address.

Returns

void

Definition at line 208 of file AC784xx_Mpu_Reg.h.

4.2.2.22 Mpu_Reg_SetRegionPid()

```
LOCAL_INLINE void Mpu_Reg_SetRegionPid (
    uint8 Mpuidx,
    uint8 RegionIdx,
    uint8 Pid,
    uint8 PidMask )
```

Set the MPU region pid.

Note

Function ID: DES_MPU_API_316

Parameters

in	<i>Mpuidx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.
in	<i>PidMask</i>	Pid Mask

Returns

none

Definition at line 258 of file AC784xx_Mpu_Reg.h.

4.2.2.23 Mpu_Reg_SetRegionStartAddr()

```
LOCAL_INLINE void Mpu_Reg_SetRegionStartAddr (
    uint8 Mpuidx,
    uint8 RegionIdx,
    uint32 Addr )
```

Set the MPU region start address.

Note

Function ID: DES_MPU_API_310

Parameters

in	<i>Mpuidx</i>	MPU number, 0~1.
in	<i>RegionIdx</i>	MPU Region number, 0~7.
in	<i>Addr</i>	region start address.

Returns

void

Definition at line 183 of file AC784xx_Mpu_Reg.h.

4.3 Mpu_Hal.c File Reference

This file provides Hal Mpu api.

```
#include "AC784xx_Mpu_Reg.h"
#include "Mpu_Hal.h"
```

Macros

- `#define MPU_MASTER_PID_ENABLE_MASK 0xF0000000UL`
- `#define MPU_PERMISSION_MASK 0xFFFFFFFFUL`

Functions

- void [Mpu_Hal_Init](#) (const [Mpu_ConfigType](#) *ConfigPtr)
Mpu module init.
- void [Mpu_Hal_Deinit](#) (void)
Mpu module deinit.
- void [Mpu_Hal_SetRegionAddr](#) (Mpu_IdType Mpuld, Mpu_RegionIdType RegionId, const [Mpu_RegionAddrConfigType](#) *AddrConfigPtr)
set region address configuration.
- void [Mpu_Hal_GetRegionInfo](#) (Mpu_IdType Mpuld, Mpu_RegionIdType RegionId, [Mpu_RegionParamsType](#) *RegionParamsPtr)
get region info.
- void [Mpu_Hal_EnableRegion](#) (Mpu_IdType Mpuld, Mpu_RegionIdType RegionId, boolean Enable)
enable/disbale region.
- void [Mpu_Hal_SetRegionAttrs](#) (Mpu_IdType Mpuld, Mpu_RegionIdType RegionId, const [Mpu_RegionAttrsType](#) *AttrsPtr)
set region attribution.
- LOCAL_INLINE Mpu_IdType [Mpu_Hal_SlaveToMpu](#) (Mpu_SlaveType Slave)
get slave register idx.
- LOCAL_INLINE uint8 [Mpu_Hal_SlaveToRegIdx](#) (Mpu_SlaveType Slave)
get slave register idx.
- Hal_StatusType [Mpu_Hal_GetErrorSlaveId](#) (Mpu_SlaveType *Slave)
get error slave id.
- Hal_StatusType [Mpu_Hal_GetSlaveErrorInfo](#) (Mpu_SlaveType Slave, [Mpu_ErrorInfoType](#) *ErrInfoPtr)
get slave error info.
- void [Mpu_Hal_ClearSlaveError](#) (Mpu_SlaveType Slave)
Clear Error status of Port .

4.3.1 Detailed Description

This file provides Hal Mpu api.

4.3.2 Macro Definition Documentation

4.3.2.1 MPU_MASTER_PID_ENABLE_MASK

```
#define MPU_MASTER_PID_ENABLE_MASK 0xF0000000UL
```

Definition at line 47 of file Mpu_Hal.c.

4.3.2.2 MPU_PERMISSION_MASK

```
#define MPU_PERMISSION_MASK 0xFFFFFFFFUL
```

Definition at line 48 of file Mpu_Hal.c.

4.3.3 Function Documentation

4.3.3.1 Mpu_Hal_ClearSlaveError()

```
void Mpu_Hal_ClearSlaveError (
    Mpu_SlaveType Slave )
```

Clear Error status of Port .

Note

Function ID: DES_MCL_API_409

Parameters

in	<i>Slave</i>	slave id
----	--------------	----------

Returns

void

Definition at line 438 of file Mpu_Hal.c.

4.3.3.2 Mpu_Hal_Deinit()

```
void Mpu_Hal_Deinit (
    void )
```

Mpu module deinit.

Note

Function ID:DES_MCL_API_402

Returns

void

Definition at line 141 of file Mpu_Hal.c.

4.3.3.3 Mpu_Hal_EnableRegion()

```
void Mpu_Hal_EnableRegion (
    Mpu_IdType MpuId,
    Mpu_RegionIdType RegionId,
    boolean Enable )
```

enable/disbale region.

Note

Function ID: DES_MCL_API_405

Parameters

in	<i>MpuId</i>	mpu id
in	<i>RegionId</i>	region id
in	<i>Enable</i>	enable/disable region configuration

Returns

void

Definition at line 221 of file Mpu_Hal.c.

4.3.3.4 Mpu_Hal_GetErrorSlaveId()

```
Hal_StatusType Mpu_Hal_GetErrorSlaveId (  
    Mpu_SlaveType * Slave )
```

get error slave id.

Note

Function ID: DES_MCL_API_410

Parameters

out	<i>Slave</i>	: slave id
-----	--------------	------------

Returns

Hal_StatusType: Is there an error, STATUS_SUCCESS stands for no error; STATUS_ERROR is a error

Definition at line 322 of file Mpu_Hal.c.

4.3.3.5 Mpu_Hal_GetRegionInfo()

```
void Mpu_Hal_GetRegionInfo (  
    Mpu_IdType MpuId,  
    Mpu_RegionIdType RegionId,  
    Mpu_RegionParamsType * RegionParamsPtr )
```

get region info.

Note

Function ID:DES_MCL_API_404

Parameters

in	<i>Mpuld</i>	mpu id
in	<i>RegionId</i>	region id
out	<i>RegionParamsPtr</i>	region params pointer

Returns

void

Definition at line 189 of file Mpu_Hal.c.

4.3.3.6 Mpu_Hal_GetSlaveErrorInfo()

```
Hal_StatusType Mpu_Hal_GetSlaveErrorInfo (
    Mpu_SlaveType Slave,
    Mpu_ErrorInfoType * ErrInfoPtr )
```

get slave error info.

Note

Function ID: DES_MCL_API_408

Parameters

in	<i>Slave</i>	slave id
in	<i>ErrInfoPtr</i>	Error info struction of Slave

Returns

Hal_StatusType: Is there an error, STATUS_SUCCESS stands for no error; STATUS_ERROR is a error

Definition at line 407 of file Mpu_Hal.c.

4.3.3.7 Mpu_Hal_Init()

```
void Mpu_Hal_Init (
    const Mpu_ConfigType * ConfigPtr )
```

Mpu module init.

Note

Function ID: DES_MCL_API_401

Parameters

in	<i>ConfigPtr</i>	mpu configuration
----	------------------	-------------------

Returns

void

< mpu module configure pointer

< region attributes pointer

< Mpu module id

Definition at line 70 of file Mpu_Hal.c.

4.3.3.8 Mpu_Hal_SetRegionAddr()

```
void Mpu_Hal_SetRegionAddr (
    Mpu_IdType MpuId,
    Mpu_RegionIdType RegionId,
    const Mpu_RegionAddrConfigType * AddrConfigPtr )
```

set region address configuration.

Note

Function ID: DES_MCL_API_403

Parameters

in	<i>MpuId</i>	mpu id
in	<i>RegionId</i>	region id
in	<i>AddrConfigPtr</i>	region address configuration pointer

Returns

void

Definition at line 168 of file Mpu_Hal.c.

4.3.3.9 Mpu_Hal_SetRegionAttrs()

```
void Mpu_Hal_SetRegionAttrs (
    Mpu_IdType MpuId,
    Mpu_RegionIdType RegionId,
    const Mpu_RegionAttrsType * AttrsPtr )
```

set region attribution.

Note

Function ID: DES_MCL_API_406

Parameters

in	<i>MpuId</i>	mpu id
in	<i>Region↔ Id</i>	region id
in	<i>AttrsPtr</i>	region attribute configuration pointer

Returns

void

Definition at line 257 of file Mpu_Hal.c.

4.3.3.10 Mpu_Hal_SlaveToMpu()

```
LOCAL_INLINE Mpu_IdType Mpu_Hal_SlaveToMpu (  
    Mpu_SlaveType Slave )
```

get slave register idx.

Note

Function ID: DES_MCL_API_412

Parameters

in	<i>Slave</i>	: slave id
----	--------------	------------

Returns

Mpu_IdType: mpu id

Definition at line 279 of file Mpu_Hal.c.

4.3.3.11 Mpu_Hal_SlaveToRegIdx()

```
LOCAL_INLINE uint8 Mpu_Hal_SlaveToRegIdx (  
    Mpu_SlaveType Slave )
```

get slave register idx.

Note

Function ID: DES_MCL_API_411

Parameters

in	Slave	: slave id
----	-------	------------

Returns

uint32: slave register idx

Definition at line 301 of file Mpu_Hal.c.

4.4 Mpu_Hal.h File Reference

This file provides extern Hal Mpu api.

```
#include "Device_Register.h"
```

Classes

- struct [Mpu_RegionAddrConfigType](#)
MPU Region range and attribute.
- struct [Mpu_ErrorInfoType](#)
MPU Error Information structure.
- struct [Mpu_RegionAttrsType](#)
MPU region attributes.
- struct [Mpu_RegionParamsType](#)
MPU Region range and attribute.
- struct [Mpu_RegionConfigType](#)
MPU Region range and attribute.
- struct [Mpu_ModuleConfigType](#)
MPU configuration structure.
- struct [Mpu_ConfigType](#)
MPU Region range and attribute.

Functions

- void [Mpu_Hal_Init](#) (const [Mpu_ConfigType](#) *ConfigPtr)
Mpu module init.
- void [Mpu_Hal_Deinit](#) (void)
Mpu module deinit.
- void [Mpu_Hal_SetRegionAddr](#) (Mpu_IdType Mpuld, Mpu_RegionIdType RegionId, const [Mpu_RegionAddrConfigType](#) *AddrConfigPtr)
set region address configuration.
- void [Mpu_Hal_SetRegionAttrs](#) (Mpu_IdType Mpuld, Mpu_RegionIdType RegionId, const [Mpu_RegionAttrsType](#) *AttrsPtr)
set region attribution.
- void [Mpu_Hal_GetRegionInfo](#) (Mpu_IdType Mpuld, Mpu_RegionIdType RegionId, [Mpu_RegionParamsType](#) *RegionParamsPtr)
get region info.
- void [Mpu_Hal_EnableRegion](#) (Mpu_IdType Mpuld, Mpu_RegionIdType RegionId, boolean Enable)
enable/disbale region.
- Hal_StatusType [Mpu_Hal_GetSlaveErrorInfo](#) (Mpu_SlaveType Slave, [Mpu_ErrorInfoType](#) *ErrInfoPtr)
get slave error info.
- void [Mpu_Hal_ClearSlaveError](#) (Mpu_SlaveType Slave)
Clear Error status of Port .
- Hal_StatusType [Mpu_Hal_GetErrorSlaveId](#) (Mpu_SlaveType *Slave)
get error slave id.

4.4.1 Detailed Description

This file provides extern Hal Mpu api.

4.4.2 Function Documentation

4.4.2.1 Mpu_Hal_ClearSlaveError()

```
void Mpu_Hal_ClearSlaveError (
    Mpu_SlaveType Slave )
```

Clear Error status of Port .

Note

Function ID: DES_MCL_API_409

Parameters

in	<i>Slave</i>	slave id
----	--------------	----------

Returns

void

Definition at line 438 of file Mpu_Hal.c.

4.4.2.2 Mpu_Hal_Deinit()

```
void Mpu_Hal_Deinit (
    void )
```

Mpu module deinit.

Note

Function ID:DES_MCL_API_402

Returns

void

Definition at line 141 of file Mpu_Hal.c.

4.4.2.3 Mpu_Hal_EnableRegion()

```
void Mpu_Hal_EnableRegion (
    Mpu_IdType MpuId,
    Mpu_RegionIdType RegionId,
    boolean Enable )
```

enable/disable region.

Note

Function ID: DES_MCL_API_405

Parameters

in	<i>MpuId</i>	mpu id
in	<i>RegionId</i>	region id
in	<i>Enable</i>	enable/disable region configuration

Returns

void

Definition at line 221 of file Mpu_Hal.c.

4.4.2.4 Mpu_Hal_GetErrorSlaveId()

```
Hal_StatusType Mpu_Hal_GetErrorSlaveId (
    Mpu_SlaveType * Slave )
```

get error slave id.

Note

Function ID: DES_MCL_API_410

Parameters

out	<i>Slave</i>	: slave id
-----	--------------	------------

Returns

Hal_StatusType: Is there an error, STATUS_SUCCESS stands for no error; STATUS_ERROR is a error

Definition at line 322 of file Mpu_Hal.c.

4.4.2.5 Mpu_Hal_GetRegionInfo()

```
void Mpu_Hal_GetRegionInfo (
    Mpu_IdType MpuId,
    Mpu_RegionIdType RegionId,
    Mpu_RegionParamsType * RegionParamsPtr )
```

get region info.

Note

Function ID:DES_MCL_API_404

Parameters

in	<i>MpuId</i>	mpu id
in	<i>RegionId</i>	region id
out	<i>RegionParamsPtr</i>	region params pointer

Returns

void

Definition at line 189 of file Mpu_Hal.c.

4.4.2.6 Mpu_Hal_GetSlaveErrorInfo()

```
Hal_StatusType Mpu_Hal_GetSlaveErrorInfo (
    Mpu_SlaveType Slave,
    Mpu_ErrorInfoType * ErrInfoPtr )
```

get slave error info.

Note

Function ID: DES_MCL_API_408

Parameters

in	<i>Slave</i>	slave id
in	<i>ErrInfoPtr</i>	Error info struction of Slave

Returns

Hal_StatusType: Is there an error, STATUS_SUCCESS stands for no error; STATUS_ERROR is a error

Definition at line 407 of file Mpu_Hal.c.

4.4.2.7 Mpu_Hal_Init()

```
void Mpu_Hal_Init (
    const Mpu_ConfigType * ConfigPtr )
```

Mpu module init.

Note

Function ID: DES_MCL_API_401

Parameters

in	<i>ConfigPtr</i>	mpu configuration
----	------------------	-------------------

Returns

void

< mpu module configure pointer

< region attributes pointer

< Mpu module id

Definition at line 70 of file Mpu_Hal.c.

4.4.2.8 Mpu_Hal_SetRegionAddr()

```
void Mpu_Hal_SetRegionAddr (
    Mpu_IdType MpuId,
    Mpu_RegionIdType RegionId,
    const Mpu_RegionAddrConfigType * AddrConfigPtr )
```

set region address configuration.

Note

Function ID: DES_MCL_API_403

Parameters

in	<i>MpuId</i>	mpu id
in	<i>RegionId</i>	region id
in	<i>AddrConfigPtr</i>	region address configuration pointer

Returns

void

Definition at line 168 of file Mpu_Hal.c.

4.4.2.9 Mpu_Hal_SetRegionAttrs()

```
void Mpu_Hal_SetRegionAttrs (
    Mpu_IdType MpuId,
    Mpu_RegionIdType RegionId,
    const Mpu_RegionAttrsType * AttrsPtr )
```

set region attribution.

Note

Function ID: DES_MCL_API_406

Parameters

in	<i>MpuId</i>	mpu id
in	<i>RegionId</i>	region id
in	<i>AttrsPtr</i>	region attribute configuration pointer

Returns

void

Definition at line 257 of file Mpu_Hal.c.

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