### BOOT\_ChooseAndLoadSW

#### BOOT\_CLSW\_LoadSW\_Load\_LoadAndTest

This function checks the state of ARINC665 files in FLASH and in RMM

Prototype:

void BOOT\_CLSW\_LoadSW\_Load\_LoadAndTest(

const TS\_FileInfo\* const p\_FileInfo,

boolean\_t\* p\_FlashReadFailed,

ts\_LoadStatus\* p\_LoadStatus)

Parameters:

Function return : Not used

p\_FileInfo (R) : File Info

p\_FlashReadFailed(W) : Read failure status

p\_LoadStatus(W) : Load status

Calls:

LIBBSP\_FNOR\_Open

LIBBSP\_FNOR\_FastRead

LIBBSP\_FNOR\_Close

LIBBSP\_RMM\_Open

LIBBSP\_RMM\_Read

LIBBSP\_RMM\_Close

LIBUTI\_SHA\_ComputeSHA256

LIBUTI\_MEM\_MemsNotEqual

Preconditions:

None

##### Input Data

Data:

None

Preconditions:

None

##### Output Data

Data:

None

##### Requirements

REQ\_SDDD\_BOOT\_000xx-0x

*[COV.REQ\_SRD\_BOOT\_00087] [COV.REQ\_SRD\_BOOT\_00089] [COV.REQ\_SRD\_BOOT\_00096]*

BOOT\_CLSW\_LoadSW\_Load\_LoadAndTest

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Causes | | | | | |
| Effects | [File Info is equal to 0] | | | [File Info is different from 0] | | |
| **[**Open SPI bus to access to the FLASH**]** | | | **[**Open I2C link to RMM**]** | | |
| [The access to the FLASH is successful] | | [The access to the FLASH is not successful] | [The I2C link to RMM is not successful] | [The I2C link to RMM is successful] | |
| **[**Read the File Info from Flash**]**  **[**Close The SPI link to the FLASH**]** | | Set {p\_FlashReadFailed} to TRUE and exit function | Set {p\_FlashReadFailed} to TRUE and exit function | **[**Read the File Info from RMM**]**  **[**Close The access to the device**]** | |
| [An error is detected] | [No error detected] | [An error is detected] | [No error detected] |
| Set {p\_FlashReadFailed} to TRUE and exit function | No effect | Set {p\_FlashReadFailed} to TRUE and exit function | No effect |
| **[**Compute the SHA2\_256 checksum of the data**]**  **[**check the corrupted state of SIF Header**]** | | | | | |

[File Info is equal to 0]: bit0 of {p\_FileInfo->ARINC\_665\_FileInfo->Address} is equal to 0.

**[**Open SPI bus to access to the FLASH**]** corresponds to the following call:

**LIBBSP\_FNOR\_Open**

* **Function return:** {FLASH status}
* **IN:** {E\_LIBBSP\_SPI\_FLASH\_PROGRAM}

[The access to the FLASH is successful]: {FLASH status} is equal to {E\_LIBBSP\_FNOR\_OK}.

**[**Read the File Info from Flash**]** corresponds to the following call:

**LIBBSP\_FNOR\_FastRead**

* **Function return:** {FLASH status}
* **IN:** {E\_LIBBSP\_SPI\_FLASH\_PROGRAM}
* **IN:** {p\_FileInfo->ARINC\_665\_FileInfo->Address}
* **IN:** {p\_FileInfo->ARINC\_665\_FileInfo->Length}
* **IN/OUT:** {p\_FileInfo->Address}

The read of {p\_FileInfo->ARINC\_665\_FileInfo->Address} is done by using 4 bytes.  
The read of {p\_FileInfo->ARINC\_665\_FileInfo->Length} is done by using 4 bytes.

**[**Close The SPI link to the FLASH**]** corresponds to the following call:

**LIBBSP\_FNOR\_Close:**

* **Function return:** Not used

[An error is detected]: {FLASH status} is different from {E\_LIBBSP\_FNOR\_OK}.

[No error detected]: {FLASH status} is equal to {E\_LIBBSP\_FNOR\_OK}.

[The access to the FLASH is not successful]: {FLASH status} is different from {E\_LIBBSP\_FNOR\_OK}.

[File Info is different from 0]: bit0 of {p\_FileInfo->ARINC\_665\_FileInfo->Address} is different from 0.

**[**Open I2C link to RMM**]** corresponds to the following call:

**LIBBSP\_RMM\_Open**

* **Function return:** {access status}

[The I2C link to RMM is successful]: {access status} is equal to{E\_LIBBSP\_I2C\_OK}.

**[**Read the File Info from RMM**]** corresponds to the following call:

**LIBBSP\_RMM\_Read**

* **Function return:** not used
* **IN:** {p\_FileInfo->ARINC\_665\_FileInfo->Address} with (Bit 0=0)
* **IN:** {p\_FileInfo->ARINC\_665\_FileInfo->Length}
* **IN:** {p\_FileInfo->Address}
* **OUT:** The address of {read status}

The read of {p\_FileInfo->ARINC\_665\_FileInfo->Address} is done by using 4 bytes.  
The read of {p\_FileInfo->ARINC\_665\_FileInfo->Length} is done by using 4 bytes.

**[**Close The access to the device**]** corresponds to the following call:

**LIBBSP\_RMM\_Close**

* **Function return:** not used

[An error is detected]: {access status} is equal to {E\_LIBBSP\_I2C\_OK}.

[No error detected]: {access status} is different from {E\_LIBBSP\_I2C\_OK}.

[The I2C link to RMM is not successful]: {access status} is different from {E\_LIBBSP\_I2C\_OK}.

**[**Compute the SHA2\_256 checksum of the data**]** corresponds to the following call:

**LIBUTI\_SHA\_ComputeSHA256**

* **Function return:** not used
* **IN:** {p\_FileInfo->ARINC\_665\_FileInfo->Length}
* **IN/OUT:** the address of{SHA 256 buffer}

The read of {p\_FileInfo->ARINC\_665\_FileInfo->Length} is done by using 4 bytes.

**[**check the corrupted state of SIF Header**]** corresponds to the following call:

**LIBUTI\_MEM\_MemsNotEqual**

* **Function return:** {p\_LoadStatus->Corrupted}
* **IN:** {SHA256 Buffer Data}
* **IN:** {p\_FileInfo->ExpectedSHA256.Data}
* **IN:** {SHA256\_BLOCK\_SIZE}

The read of{SHA256\_BLOCK\_SIZE} is done by 4 bytes.

Traceability: Refined

Rationale:

Mean of verification: Test

[END\_REQ\_SDDD\_BOOT\_CLSW\_LoadSW\_Load\_LoadAndTest\_00xxx-0x]