

## M9.6 Software Product Specification (SPS)

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## 1 Scope.

### 1.1 Identification.

**STMA-77547** - This document applies to V1.0000 of the software that runs on the Functional Processor and Profibus Processor of the STM ATB. [

 Verified ]

## 1.2 System overview.

**STMA-77546** - An STM is a train protection system which prevents trains from over speeding and/or unauthorized movements. It allows ETCS equipped trains to operate on conventional (non ETCS) lines. An STM ATB is a "Specific Transmission Module" designed and built according to the ERA ERTMS specifications and national requirements for ATB-EG. When integrated with an onboard ETCS system, the combination of STM ATB and the ETCS onboard system ensures all ATB-EG and ATB-Vv functionalities on ATB equipped lines. [🔍 Verified]

## 1.3 Document overview.

**STMA-77550** - This document lists the executables provided with the STM ATB. It lists the sources needed to build these executables, instructions on how to build the executables from these sources, and verify that these executables match the provided executables. In addition it describes how to make modifications to the executables. [🔍 Verified]

## 2 Referenced documents.

### STMA-14296 - Reference documents

All the documents references used in this document can be found in the document [P6.1 Bibliography](#) available in the Polarion folder [Processes](#)

### Abbreviations, definitions and terminology

An overview of the abbreviations, definitions and terminology used in this document can be found in document [P6.2 List of abbreviations, definitions and terms](#) available in the Polarion folder [Processes](#)

### Requirement identification

The STM ATB project makes use of an automated requirement management system. In this system each requirement has been identified as a work item. Each work item has been automatically assigned with a unique ID, with the format "STMA-<number>". As a result requirement ID's are not in logical order. An overview of all the used STMA-numbers is given in document [P6.3 Requirement Overview](#) available in the Polarion folder [Processes](#) [🔍 Verified]

## 3 Requirements.

### 3.1 Executable software.

**STMA-77481** - The executable software consists of two firmwares:

1. fpmain.elf, to be installed on the Functional Processor,
2. ppmain.elf to be installed on the Profibus Processor.

[🔍 Verified]

**STMA-77482** - To verify that these are valid copies compute the md5sum for each of these two. They should match the following:

- e13b435e6c17d907489a946b3944c7b6 fpmain.elf
- 4fb777f527e6c09a0b3b22f500a66924 ppmain.elf

[🔍 Verified]

### 3.2 Source files.

**STMA-77484** - The following set of source files are needed to build the two executables:

- 21ef14eada1250b48c155907fd09a82c STMATBV1\_0000.zip
- 3c53b277a73bf5cd15fc56f5abd30738 tps.patch
- c54de22244ffa4690d4e9e32add54a56 serialDPMInterface.patch
- 5a730a99c69c75cab2bace914ff01a76 assemble.sh
- 21c2412c1cbb96604291bb2ed79eec7 SW-TM4C-2.1.3.156.exe

[🔍 Verified]

**STMA-77485** - For copyright reasons some source-code cannot be distributed as part of the source files listed above. In particular the driver software for the companion chip and the driver software for the NetX profibus controller. The source-code for these have been removed from STMATBV1\_0000.zip. They have to be extracted from the two sources listed below and copied back into the source tree using assemble.sh and the two provided patch files. [🔍 Verified]

**STMA-77581** - These two sources that have to be downloaded separately are:

- b51c5ec34eb2a1368652c9befa3650c6 spnc043b.zip
- 8125880f635aaad8dc56a9fe9efe665d Communication\_Solutions\_DVD\_2018-12-1\_1\_0500\_181008\_25726.zip

[ Verified]


**STMA-77483** - They can be downloaded from the following two locations:

- [http://www.ti.com/tool/SAFETI\\_DIAG\\_LIB?keyMatch=SAFETI%20DIAGNOSTIC%20LIBRARY](http://www.ti.com/tool/SAFETI_DIAG_LIB?keyMatch=SAFETI%20DIAGNOSTIC%20LIBRARY)
- [https://www.hilscher.com/fileadmin/big\\_data/de/Resources/zip/Communication\\_Solutions\\_DVD\\_2018-12-1\\_1\\_0500\\_181008\\_25726.zip](https://www.hilscher.com/fileadmin/big_data/de/Resources/zip/Communication_Solutions_DVD_2018-12-1_1_0500_181008_25726.zip)


[ Verified]

#### 4 Qualification provisions.



**STMA-77999** - To verify that the executables that were build from provided sources match the provided executables follow the steps in 

STMA-77543 - [Verifying the results](#) [ Verified]

#### 5 Software support information.

**STMA-77545** - This section describes how the software can be reassembled and build from the provided sources and how the software may be modified. [ Verified]

##### 5.1 "As built" software design.


**STMA-77541** - The corresponding design for the software can be found in  [D6.2 SDD System level](#) and the corresponding subdocuments D6.2.x and D6.3.x listed in this document. [ Verified]

##### 5.2 Compilation/build procedures.


###### 5.2.1 Prerequisites


**STMA-77487** - To build the executables the following build tools are required:

- Ubuntu 18.04.4 LTS.
- cmake version 3.5.1
- GNU Make 4.1
- ARM C compiler v16.9.4.LTS
- armstrip 5.4
- GCC 5.4.0
- Tivaware 2.1.3.156.
- dos2unix 7.3.4
- astyle 3.1

The installation procedures for these tools are described in the following sections. [ Verified]

###### 5.2.1.1 Ubuntu

**STMA-77554** - The executables are developed and build under Linux. In particular Ubuntu 18.04.04. [ Verified]

**STMA-77521** - A netboot install with default options is sufficient as build environment. It can be downloaded from <http://cdimage.ubuntu.com/netboot/18.04/>. The here described build procedure has also been successfully tested under Ubuntu 19.10. [ Verified]

### 5.2.1.2 GCC, Make and CMake

**STMA-77520** - Make and CMake are build essentials. GCC is used to compile test executables that run under X86. These are installed with:

```
sudo apt install cmake
```

[ Verified ]

### 5.2.1.3 dos2unix and astyle

**STMA-77517** - These two programs are needed to reassemble the sources.

```
sudo apt install astyle dos2unix
```


[ Verified ]

### 5.2.1.4 TI ARM C Compiler


**STMA-77507** - Both firmwares are compiled with the TI ARM C compiler version v16.9.4.LTS. It can be downloaded from <http://www.ti.com/tool/download/ARM-CGT-16/16.9.4.LTS> and installed with:

```
sudo apt-install libc6-i386
chmod +x ti_cgt_tms470_16.9.4.LTS_linux_installer_x86.bin
./ti_cgt_tms470_16.9.4.LTS_linux_installer_x86.bin
sudo mkdir -p /opt/ti/ccsv7/tools/compile
sudo mv ti-cgt-arm_16.9.4.LTS /opt/ti/ccsv7/tools/compiler
```

[ Verified ]

**STMA-77508** - The build scripts assume it is installed in `/opt/ti/ccsv7/tools/compiler/ti-cgt-arm_16.9.4.LTS`. However the installation paths can be changed in `src/cmake_config/hercules_ti_cgt_arm.cmake` and `src/cmake_config/tiva_ti_cgt_arm.cmake` [ Verified ]

### 5.2.1.5 ARM Strip


**STMA-77502** - Strip is needed to remove all debugging and symbol information from the executables so a proper hash can be computed to compare the results of two compilations. The strip provided with the TI ARM C compiler does not strip all information so the one from the GNU ARM compiler is used. It can be downloaded from [https://launchpad.net/gcc-arm-embedded/5.0/5-2016-q3-update/+download/gcc-arm-none-eabi-5\\_4-2016q3-20160926-linux.tar.bz2](https://launchpad.net/gcc-arm-embedded/5.0/5-2016-q3-update/+download/gcc-arm-none-eabi-5_4-2016q3-20160926-linux.tar.bz2) [ Verified ]

**STMA-77505** - To install run:

```
tar -xvf gcc-arm-none-eabi-5_4-2016q3-20160926-linux.tar.bz2
sudo mkdir -p /opt/Tiva
sudo mv gcc-arm-none-eabi-5_4-2016q3 /opt/Tiva/
```

[ Verified ]

### 5.2.1.6 TivaWare

**STMA-77496** - TivaWare includes header files needed to compile the profibus processor firmware. The STM ATB was developed using the header files provided in `SW-TM4C-2.1.3.156.exe`. This version is no longer available for download and is therefore provided together with the STM ATB sources. Newer versions can be downloaded from <http://www.ti.com/tool/download/SW-TM4C>. [ Verified ]

**STMA-77494** - To install TivaWare run:

```
sudo mkdir -p /opt/Tiva/tivaware
sudo cp SW-TM4C-2.1.3.156.exe /opt/Tiva/tivaware
cd /opt/Tiva/tivaware
sudo unzip SW-TM4C-2.1.3.156.exe
```


[ Verified ]


### 5.2.1.7 Reassembling the sources

**STMA-77491** - Before the firmware can be compiled the full set of sources have to be reassembled from the proprietary and non proprietary parts. To reassemble copy the following source files into a single directory on the machine running Ubuntu:


- STMATBV1\_0000.zip
- tps.patch
- serialDPMInterface.patch
- assemble.sh
- Communication\_Solutions\_DVD\_2018-12-1\_1\_0500\_181008\_25726.zip


[ Verified ]

**STMA-77493** - Copy spnc043b.zip to a Windows machine unzip it and install it. This will create a directory  
c:\ti\Hercules\SafeTIDiagnostic Library\2.4.0. [ Verified ]

**STMA-77492** - Zip the sub-directory 2.4.0 as 2.4.0.zip. Copy this file to in the single directory on the Ubuntu machine mentioned above. Zip it in such way that the directory name 2.4.0 is included in the archive so that when the archive is unzipped a directory called 2.4.0 is created. [ Verified ]

**STMA-77489** - Now execute:

```
chmod +x assemble.sh  
./assemble.sh [ Verified ]
```

**STMA-77490** - As a result of this a new directory called STMATBV1\_0000 is created. This directory contains the full set of sources needed to build the executables. [ Verified ]

### 5.2.1.8 Building the executables from source

**STMA-77523** - To build both executables run:

```
cd STMATBV1_0000/src  
./build_all.sh
```

[ Verified ]

**STMA-77524** - This builds all executables, test-executables, and runs the unit tests. The build should finish with the line: "Ran 293 tests. 3 Failed" The following tests should be reported as failed:

1. Failed test\_idle\_telegrams\_timeouts STMA-72428, Idle....
2. Failed test\_disconnect\_orders STMA-72473, Disconnect....
3. Failed test\_order\_queue\_limit STMA-73800, The order.....

[ Verified ]

**STMA-77525** - Build results are stored in three directories:

- ./build\_fp
- ./build\_pp
- ./build\_x86

[ Verified ]

**STMA-77528** - The executables can be found at:

- ./build\_fp/STMATB/functional\_processor/fpmain.elf.
- ./build\_pp/build\_pp/STMATB/profibus\_processor/ppmain.elf

[ Verified ]

**STMA-77526** - Individual parts can be build using the following commands. To build the firmware for the Functional Processor run:

```
./build_it.sh fp
```

[ Verified ]

**STMA-77527** - To build the firmware for the Profibus Processor run:

```
./build_it.sh pp
```

[👍 Verified]

### 5.2.1.9 Verifying the results

**STMA-77529** - In addition to the executables the build process creates two files with hashes to verify that the build is reproducible. The following two commands should not report any differences

```
diff ./manifest_pp.txt build_pp/manifest_pp.txt
diff ./manifest_fp.txt build_fp/manifest_fp.txt [👍 Verified]
```

## 5.3 Modification procedures.

**STMA-77530** - General instructions on design, coding, and other conventions to be followed can be found in:

📖 [STMA-63125 - Q2.10.1 Workinstruction for software design and development](#) [👍 Verified]

**STMA-77531** - A number of parts of the code are generated by code generators. There are generators for:

1. state machine,
2. the mapping of events to measures,
3. encoding en decoding STM packets,
4. hardware configuration.

[👍 Verified]

### 5.3.1 State machine

**STMA-77533** - To add, remove, or modify a state or a transition edit the corresponding .md file that contains the specification for the state machine.

After that regenerate the code with the generate.sh script. These two files can be found in each directory that contains state machine code.

After this run ./src/STMATB/common\_types/generate.sh to update the enum types used by state machine code. [👍 Verified]

### 5.3.2 Mapping of events to measures

**STMA-77537** - To modify the mapping edit ./src/STMATB/functional\_processor/event\_handler/Event\_Measure\_Matrix.csv and run ./src/STMATB/functional\_processor/event\_handler/generate.sh in its source directory. [👍 Verified]

### 5.3.3 Encoding en decoding STM packets

**STMA-77538** - Two modification are possible, to add or remove packet types edit the variable "relevant\_packets\_list" in:

./src/Generators/SubsetEncoderDecoderGenerator/json2stmcode.py and run

./src/Generators/SubsetEncoderDecoderGenerator/generate.sh in its source directory. [👍 Verified]

### 5.3.4 Hardware configuration

**STMA-77539** - The hardware configuration can be modified with HalcoGen. For the development of the STM ATB version 04.06.00 was used. It can be downloaded from [https://processors.wiki.ti.com/index.php/HALCoGen#Old\\_Version.27s](https://processors.wiki.ti.com/index.php/HALCoGen#Old_Version.27s). It is possible to run this under Wine but it runs more smoothly under Windows. To make changes in the hardware configuration copy the STM ATB sources to a windows machine and open src/STMATB/hercules\_drivers/halcoGen/SAP\_RM48\_Peripherals.hcg make the changes and regenerate the code. [👍 Verified]

## 6 Requirements traceability

### STMA-77555 -

The following tables show the mapping between source code files and the software modules defined in 📖 [STMA-64538 - Functional Processor Application](#) and 📖 [STMA-64539 - Profibus Processor Application](#). [👍 Verified]

**STMA-77564** - Module Application Layer:

- src/STMATB/functional\_processor/application\_layer/apl\_getset.c
- src/STMATB/functional\_processor/application\_layer/apl\_getset.h
- src/STMATB/functional\_processor/application\_layer/apl\_module.c
- src/STMATB/functional\_processor/application\_layer/apl\_module.h
- src/STMATB/functional\_processor/application\_layer/apl\_module\_state.h
- src/STMATB/functional\_processor/application\_layer/subset\_decoder\_encoder/stm\_subset58\_msglayer.c

- src/STMATB/functional\_processor/application\_layer/subset\_decoder\_encoder/stm\_subset58\_msglayer.h
- src/STMATB/functional\_processor/application\_layer/subset\_decoder\_encoder/subset58\_bitoperations.c
- src/STMATB/functional\_processor/application\_layer/subset\_decoder\_encoder/subset58\_bitoperations.h
- src/STMATB/functional\_processor/application\_layer/subset\_decoder\_encoder/subset58\_packets.h

[ Verified]

#### STMA-77571 - Module ATBEG+Vv Function:

- src/STMATB/functional\_processor/atb/atb\_getset.c
- src/STMATB/functional\_processor/atb/atb\_getset.h
- src/STMATB/functional\_processor/atb/atb\_module.c
- src/STMATB/functional\_processor/atb/atb\_module.h
- src/STMATB/functional\_processor/atb/atb\_module\_state.h
- src/STMATB/functional\_processor/atb/atbeg\_sm/atbeg\_env.h
- src/STMATB/functional\_processor/atb/atbeg\_sm/atbeg\_sm\_imp.c
- src/STMATB/functional\_processor/atb/atbeg\_sm/atbeg\_sm\_imp.h
- src/STMATB/functional\_processor/atb/atbeg\_sm/isdoatbeg\_sm.c
- src/STMATB/functional\_processor/atb/atbeg\_sm/isdoatbeg\_sm.h
- src/STMATB/functional\_processor/atb/atbv\_sm/atbv\_env.h
- src/STMATB/functional\_processor/atb/atbv\_sm/atbv\_sm\_imp.c
- src/STMATB/functional\_processor/atb/atbv\_sm/atbv\_sm\_imp.h
- src/STMATB/functional\_processor/atb/atbv\_sm/isdoatbv\_sm.c
- src/STMATB/functional\_processor/atb/atbv\_sm/isdoatbv\_sm.h

[ Verified]

#### STMA-77569 - Module Basic Software:

- src/STMATB/basic\_software/bs\_assert.c
- src/STMATB/basic\_software/bs\_crc.c
- src/STMATB/basic\_software/bs\_crc.h
- src/STMATB/basic\_software/bs\_do\_nothing.c
- src/STMATB/basic\_software/bs\_do\_nothing.h
- src/STMATB/basic\_software/bs\_example\_queue.c
- src/STMATB/basic\_software/bs\_example\_queue.h
- src/STMATB/basic\_software/bs\_hardware\_access.h
- src/STMATB/basic\_software/bs\_queue.c
- src/STMATB/basic\_software/bs\_queue.h
- src/STMATB/basic\_software/hercules/time\_helper.c
- src/STMATB/basic\_software/system\_panic.c
- src/STMATB/basic\_software/system\_panic.h
- src/STMATB/basic\_software/time\_helper.h
- src/STMATB/basic\_software/time\_tracking.c
- src/STMATB/basic\_software/time\_tracking.h
- src/STMATB/basic\_software/tiva/time\_helper.c

[ Verified]

#### STMA-77574 - Module Common Types:

- src/STMATB/common\_types/stmatb\_bool.h
- src/STMATB/common\_types/stmatb\_complex.h
- src/STMATB/common\_types/stmatb\_connection\_id.c
- src/STMATB/common\_types/stmatb\_connection\_id.h
- src/STMATB/common\_types/stmatb\_connection\_order.c
- src/STMATB/common\_types/stmatb\_connection\_order.h
- src/STMATB/common\_types/stmatb\_connection\_order\_queue.c
- src/STMATB/common\_types/stmatb\_connection\_order\_queue.h



- src/STMATB/common\_types/stmatb\_conversions.c
- src/STMATB/common\_types/stmatb\_conversions.h
- src/STMATB/common\_types/stmatb\_def.h
- src/STMATB/common\_types/stmatb\_disconnect\_etcs.c
- src/STMATB/common\_types/stmatb\_disconnect\_etcs.h
- src/STMATB/common\_types/stmatb\_enums.c
- src/STMATB/common\_types/stmatb\_enums.h
- src/STMATB/common\_types/stmatb\_limited\_code\_speed.c
- src/STMATB/common\_types/stmatb\_limited\_code\_speed.h
- src/STMATB/common\_types/stmatb\_limits.h
- src/STMATB/common\_types/stmatb\_message.c
- src/STMATB/common\_types/stmatb\_message.h
- src/STMATB/common\_types/stmatb\_message\_queue.c
- src/STMATB/common\_types/stmatb\_message\_queue.h
- src/STMATB/common\_types/stmatb\_module\_ids.h
- src/STMATB/common\_types/stmatb\_packet.c
- src/STMATB/common\_types/stmatb\_packet.h
- src/STMATB/common\_types/stmatb\_packet\_queue.c
- src/STMATB/common\_types/stmatb\_packet\_queue.h
- src/STMATB/common\_types/stmatb\_reftime.c
- src/STMATB/common\_types/stmatb\_reftime.h
- src/STMATB/common\_types/stmatb\_state\_of\_connections.c
- src/STMATB/common\_types/stmatb\_state\_of\_connections.h
- src/STMATB/common\_types/stmatb\_telegram.c
- src/STMATB/common\_types/stmatb\_telegram.h
- src/STMATB/common\_types/stmatb\_telegram\_queue.c
- src/STMATB/common\_types/stmatb\_telegram\_queue.h
- src/STMATB/common\_types/stmatb\_types.c
- src/STMATB/common\_types/stmatb\_types.h
- src/STMATB/common\_types/stmatb\_version\_info.c

[ Verified]

#### STMA-77572 - Module Debug Utils:

- src/STMATB/debug\_utils/bs\_logging.c
- src/STMATB/debug\_utils/bs\_logging.h
- src/STMATB/debug\_utils/bs\_print.h
- src/STMATB/debug\_utils/bs\_read.h
- src/STMATB/debug\_utils/dbg\_pins.h
- src/STMATB/debug\_utils/hercules/bs\_uartio.c
- src/STMATB/debug\_utils/hercules/dbg\_pins.c
- src/STMATB/debug\_utils/tiva/bs\_no\_io.c

[ Verified]

#### STMA-77559 - Module ATBEG+Vv Decoder:

- src/STMATB/functional\_processor/decoder/dec\_getset.h
- src/STMATB/functional\_processor/decoder/dec\_module\_state.h
- src/STMATB/functional\_processor/decoder/decoder\_module.h

[ Verified]

#### STMA-77558 - Module FPDC:

- src/STMATB/functional\_processor/fpdc/fpdc\_getset.c
- src/STMATB/functional\_processor/fpdc/fpdc\_getset.h
- src/STMATB/functional\_processor/fpdc/fpdc\_hardware\_helper.h

- src/STMATB/functional\_processor/fpdc/fpdc\_module.c
- src/STMATB/functional\_processor/fpdc/fpdc\_module.h
- src/STMATB/functional\_processor/fpdc/fpdc\_module\_state.h
- src/STMATB/functional\_processor/fpdc/hercules/fpdc\_hardware\_helper.c

**Module Companion Chip Library:**

- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_adc.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_can.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_ccmr4f.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_ccmr5f.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_dcc.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_dma.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_efc.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_epc.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_esm.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_f021flash.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_gio.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_het.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_htu.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_iomm.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_l2ramw.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_lin.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_mibspi.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_pbist.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_pcr.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_pmm.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_rti.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_sci.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_scm.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_sdcmmr.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_stc.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_system.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_tcmram.h
- src/STMATB/hercules\_drivers/hal/reg\_bitdefn\_vim.h
- src/STMATB/hercules\_drivers/hal/sl\_hal\_stdtypes.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_adc.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_can.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_dcc.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_dma.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_efc.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_epc.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_esm.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_flash.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_gio.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_het.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_htu.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_l2ramw.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_lin.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_mibspi.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_pbist.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_pcr.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_pmm.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_rti.h
- src/STMATB/hercules\_drivers/hal/sl\_reg\_sci.h

- src/STMATE/hercules\_drivers/hal/sl\_reg\_scm.h
- src/STMATE/hercules\_drivers/hal/sl\_reg\_sdcmmr.h
- src/STMATE/hercules\_drivers/hal/sl\_reg\_spi.h
- src/STMATE/hercules\_drivers/hal/sl\_reg\_stc.h
- src/STMATE/hercules\_drivers/hal/sl\_reg\_system.h
- src/STMATE/hercules\_drivers/hal/sl\_reg\_tcram.h
- src/STMATE/hercules\_drivers/hal/sl\_reg\_vim.h
- src/STMATE/hercules\_drivers/hal/sl\_sys\_common.h
- src/STMATE/hercules\_drivers/hal/sl\_sys\_vim.h

[ Verified]

#### STMA-77561 - Module Halcogen:

- src/STMATE/hercules\_drivers/halcogen/include/Device\_RM48.h
- src/STMATE/hercules\_drivers/halcogen/include/Device\_header.h
- src/STMATE/hercules\_drivers/halcogen/include/Device\_types.h
- src/STMATE/hercules\_drivers/halcogen/include/MemMap.h
- src/STMATE/hercules\_drivers/halcogen/include/adc.h
- src/STMATE/hercules\_drivers/halcogen/include/can.h
- src/STMATE/hercules\_drivers/halcogen/include/crc.h
- src/STMATE/hercules\_drivers/halcogen/include/dcc.h
- src/STMATE/hercules\_drivers/halcogen/include/default\_handler.h
- src/STMATE/hercules\_drivers/halcogen/include/diagnostic\_result.h
- src/STMATE/hercules\_drivers/halcogen/include/diagnostic\_wrapper.h
- src/STMATE/hercules\_drivers/halcogen/include/emac.h
- src/STMATE/hercules\_drivers/halcogen/include/esm.h
- src/STMATE/hercules\_drivers/halcogen/include/fee\_interface.h
- src/STMATE/hercules\_drivers/halcogen/include/gio.h
- src/STMATE/hercules\_drivers/halcogen/include/hal\_stdtypes.h
- src/STMATE/hercules\_drivers/halcogen/include/halcogen\_asm\_helper.h
- src/STMATE/hercules\_drivers/halcogen/include/halcogen\_helper.h
- src/STMATE/hercules\_drivers/halcogen/include/het.h
- src/STMATE/hercules\_drivers/halcogen/include/htu.h
- src/STMATE/hercules\_drivers/halcogen/include/hw\_emac.h
- src/STMATE/hercules\_drivers/halcogen/include/hw\_emac\_ctrl.h
- src/STMATE/hercules\_drivers/halcogen/include/hw\_mdio.h
- src/STMATE/hercules\_drivers/halcogen/include/hw\_reg\_access.h
- src/STMATE/hercules\_drivers/halcogen/include/hw\_usb.h
- src/STMATE/hercules\_drivers/halcogen/include/i2c.h
- src/STMATE/hercules\_drivers/halcogen/include/lin.h
- src/STMATE/hercules\_drivers/halcogen/include/mdio.h
- src/STMATE/hercules\_drivers/halcogen/include/mibspi.h
- src/STMATE/hercules\_drivers/halcogen/include/phy\_dp83640.h
- src/STMATE/hercules\_drivers/halcogen/include/pinmux.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_adc.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_can.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_crc.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_dcc.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_dma.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_efc.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_esm.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_flash.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_gio.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_het.h
- src/STMATE/hercules\_drivers/halcogen/include/reg\_htu.h

- src/STMATB/hercules\_drivers/halcogen/include/reg\_i2c.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_lin.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_mibspi.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_pbist.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_pcr.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_pinmux.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_pmm.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_rti.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_sci.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_spi.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_stc.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_system.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_tcram.h
- src/STMATB/hercules\_drivers/halcogen/include/reg\_vim.h
- src/STMATB/hercules\_drivers/halcogen/include/rti.h
- src/STMATB/hercules\_drivers/halcogen/include/sci.h
- src/STMATB/hercules\_drivers/halcogen/include/spi.h
- src/STMATB/hercules\_drivers/halcogen/include/std\_nhet.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_common.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_core.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_dma.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_mpu.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_pcr.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_pmm.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_pmu.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_selftest.h
- src/STMATB/hercules\_drivers/halcogen/include/sys\_vim.h
- src/STMATB/hercules\_drivers/halcogen/include/system.h
- src/STMATB/hercules\_drivers/halcogen/include/ti\_fee.h
- src/STMATB/hercules\_drivers/halcogen/include/ti\_fee\_cfg.h
- src/STMATB/hercules\_drivers/halcogen/include/ti\_fee\_types.h
- src/STMATB/hercules\_drivers/halcogen/include/usb-ids.h
- src/STMATB/hercules\_drivers/halcogen/include/usb.h
- src/STMATB/hercules\_drivers/halcogen/include/usb\_serial\_structs.h
- src/STMATB/hercules\_drivers/halcogen/include/usbcdc.h
- src/STMATB/hercules\_drivers/halcogen/include/usbcdc.h
- src/STMATB/hercules\_drivers/halcogen/include/usbdevice.h
- src/STMATB/hercules\_drivers/halcogen/include/usbdevicepriv.h
- src/STMATB/hercules\_drivers/halcogen/include/usblib.h
- src/STMATB/hercules\_drivers/halcogen/source/adc.c
- src/STMATB/hercules\_drivers/halcogen/source/can.c
- src/STMATB/hercules\_drivers/halcogen/source/crc.c
- src/STMATB/hercules\_drivers/halcogen/source/dcc.c
- src/STMATB/hercules\_drivers/halcogen/source/default\_handler.c
- src/STMATB/hercules\_drivers/halcogen/source/diagnostic\_wrapper.c
- src/STMATB/hercules\_drivers/halcogen/source/esm.c
- src/STMATB/hercules\_drivers/halcogen/source/gio.c
- src/STMATB/hercules\_drivers/halcogen/source/halcogen\_helper.c
- src/STMATB/hercules\_drivers/halcogen/source/het.c
- src/STMATB/hercules\_drivers/halcogen/source/mibspi.c
- src/STMATB/hercules\_drivers/halcogen/source/notification.c
- src/STMATB/hercules\_drivers/halcogen/source/pinmux.c
- src/STMATB/hercules\_drivers/halcogen/source/rti.c
- src/STMATB/hercules\_drivers/halcogen/source/sci.c
- src/STMATB/hercules\_drivers/halcogen/source/spi.c

- src/STMATB/hercules\_drivers/halcogen/source/sys\_dma.c
- src/STMATB/hercules\_drivers/halcogen/source/sys\_main.c
- src/STMATB/hercules\_drivers/halcogen/source/sys\_pcr.c
- src/STMATB/hercules\_drivers/halcogen/source/sys\_phantom.c
- src/STMATB/hercules\_drivers/halcogen/source/sys\_pmm.c
- src/STMATB/hercules\_drivers/halcogen/source/sys\_selftest.c
- src/STMATB/hercules\_drivers/halcogen/source/sys\_startup.c
- src/STMATB/hercules\_drivers/halcogen/source/sys\_vim.c
- src/STMATB/hercules\_drivers/halcogen/source/system.c

[ Verified]

#### STMA-77560 - Module Input Handler:

- src/STMATB/functional\_processor/input\_handler/atbeg\_filter/atbeg.c
- src/STMATB/functional\_processor/input\_handler/atbeg\_filter/atbeg.h
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/bool\_cbuff.c
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/bool\_cbuff.h
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/circular\_buffer.c
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/circular\_buffer.h
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/complex\_cbuff.c
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/complex\_cbuff.h
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/float\_cbuff.c
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/float\_cbuff.h
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/int16\_cbuff.c
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/int16\_cbuff.h
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/uint8\_cbuff.c
- src/STMATB/functional\_processor/input\_handler/circular\_buffer/uint8\_cbuff.h
- src/STMATB/functional\_processor/input\_handler/ih\_constants.h
- src/STMATB/functional\_processor/input\_handler/ih\_getset.c
- src/STMATB/functional\_processor/input\_handler/ih\_getset.h
- src/STMATB/functional\_processor/input\_handler/ih\_module.c
- src/STMATB/functional\_processor/input\_handler/ih\_module.h
- src/STMATB/functional\_processor/input\_handler/ih\_module\_state.h
- src/STMATB/functional\_processor/input\_handler/input\_accumulator/conversion\_factors.c
- src/STMATB/functional\_processor/input\_handler/input\_accumulator/conversion\_factors.h
- src/STMATB/functional\_processor/input\_handler/input\_accumulator/ia\_module.c
- src/STMATB/functional\_processor/input\_handler/input\_accumulator/ia\_module.h
- src/STMATB/functional\_processor/input\_handler/input\_accumulator/ia\_module\_state.h
- src/STMATB/functional\_processor/input\_handler/signal\_analyzer/sa\_module.c
- src/STMATB/functional\_processor/input\_handler/signal\_analyzer/sa\_module.h
- src/STMATB/functional\_processor/input\_handler/signal\_analyzer/sa\_module\_state.h
- src/STMATB/functional\_processor/input\_handler/signal\_checker/sc\_module.c
- src/STMATB/functional\_processor/input\_handler/signal\_checker/sc\_module.h
- src/STMATB/functional\_processor/input\_handler/signal\_checker/sc\_module\_state.h

[ Verified]

#### STMA-77563 - Module Interfaces:

- src/STMATB/interfaces/functional\_processor\_profibus\_processor/hercules/variable\_length\_protocol\_helper.c
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/ptp\_getset.c
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/ptp\_module.c
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/ptp\_module.h
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/ptp\_module\_state.h
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/ptp\_packet.h
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/rxbuff\_module.c

- src/STMATB/interfaces/functional\_processor\_profibus\_processor/rxbuff\_module.h
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/rxbuff\_module\_state.h
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/tiva/variable\_length\_protocol\_helper.c
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/txbuff\_module.c
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/txbuff\_module.h
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/txbuff\_module\_state.h
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/variable\_length\_protocol.c
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/variable\_length\_protocol.h
- src/STMATB/interfaces/functional\_processor\_profibus\_processor/variable\_length\_protocol\_helper.h

[ Verified]

#### STMA-77562 - Module NetX Driver:

- src/STMATB/tiva\_drivers/netx/Hilmd5.c
- src/STMATB/tiva\_drivers/netx/cifXDownload.c
- src/STMATB/tiva\_drivers/netx/cifXEndianess.c
- src/STMATB/tiva\_drivers/netx/cifXFunctions.c
- src/STMATB/tiva\_drivers/netx/cifXHWFunctions.c
- src/STMATB/tiva\_drivers/netx/cifXInit.c
- src/STMATB/tiva\_drivers/netx/cifXInterrupt.c
- src/STMATB/tiva\_drivers/netx/include/HilFileHeader.h
- src/STMATB/tiva\_drivers/netx/include/HilFileHeaderV3.h
- src/STMATB/tiva\_drivers/netx/include/HilPCIDefs.h
- src/STMATB/tiva\_drivers/netx/include/Hilmd5.h
- src/STMATB/tiva\_drivers/netx/include/ModuleLoader\_Public.h
- src/STMATB/tiva\_drivers/netx/include/NetX\_ROMLoader.h
- src/STMATB/tiva\_drivers/netx/include/NetX\_RegDefs.h
- src/STMATB/tiva\_drivers/netx/include/OS\_Dependent.h
- src/STMATB/tiva\_drivers/netx/include/OS\_Includes.h
- src/STMATB/tiva\_drivers/netx/include/ProfibusDl\_BusParameter.h
- src/STMATB/tiva\_drivers/netx/include/ProfibusDl\_Functionlist.h
- src/STMATB/tiva\_drivers/netx/include/ProfibusDl\_Public.h
- src/STMATB/tiva\_drivers/netx/include/ProfibusDl\_diag.h
- src/STMATB/tiva\_drivers/netx/include/ProfibusDl\_error.h
- src/STMATB/tiva\_drivers/netx/include/TLR\_CustomCompiler.h
- src/STMATB/tiva\_drivers/netx/include/TLR\_Types.h
- src/STMATB/tiva\_drivers/netx/include/WarmstartFile.h
- src/STMATB/tiva\_drivers/netx/include/cifXEndianess.h
- src/STMATB/tiva\_drivers/netx/include/cifXErrors.h
- src/STMATB/tiva\_drivers/netx/include/cifXHWFunctions.h
- src/STMATB/tiva\_drivers/netx/include/cifXToolkit.h
- src/STMATB/tiva\_drivers/netx/include/cifXUser.h
- src/STMATB/tiva\_drivers/netx/include/netx50\_romloader\_dpm.h
- src/STMATB/tiva\_drivers/netx/include/netx51\_romloader\_dpm.h
- src/STMATB/tiva\_drivers/netx/include/rcX\_Public.h
- src/STMATB/tiva\_drivers/netx/include/rcX\_User.h

[ Verified]

#### STMA-77570 - Module Output Handler:

- src/STMATB/functional\_processor/output\_handler/adg\_module.c
- src/STMATB/functional\_processor/output\_handler/adg\_module.h
- src/STMATB/functional\_processor/output\_handler/adg\_module\_state.h
- src/STMATB/functional\_processor/output\_handler/odg\_module.c
- src/STMATB/functional\_processor/output\_handler/odg\_module.h
- src/STMATB/functional\_processor/output\_handler/odg\_module\_state.h

- src/STMATB/functional\_processor/output\_handler/oh\_getset.c
- src/STMATB/functional\_processor/output\_handler/oh\_getset.h
- src/STMATB/functional\_processor/output\_handler/oh\_module.c
- src/STMATB/functional\_processor/output\_handler/oh\_module.h
- src/STMATB/functional\_processor/output\_handler/oh\_module\_state.h
- src/STMATB/functional\_processor/output\_handler/pattern\_generator.c
- src/STMATB/functional\_processor/output\_handler/pattern\_generator.h

[ Verified ]

#### STMA-77575 - Module PPFNC:

- src/STMATB/profibus\_processor/ppfnc/dpm\_interface\_helper.h
- src/STMATB/profibus\_processor/ppfnc/ppfnc\_getset.c
- src/STMATB/profibus\_processor/ppfnc/ppfnc\_getset.h
- src/STMATB/profibus\_processor/ppfnc/ppfnc\_module.c
- src/STMATB/profibus\_processor/ppfnc/ppfnc\_module.h
- src/STMATB/profibus\_processor/ppfnc/ppfnc\_module\_state.h
- src/STMATB/profibus\_processor/ppfnc/serialDPMInterface/OS\_Dependent.c
- src/STMATB/profibus\_processor/ppfnc/serialDPMInterface/OS\_Spi.c
- src/STMATB/profibus\_processor/ppfnc/serialDPMInterface/OS\_Spi.h
- src/STMATB/profibus\_processor/ppfnc/serialDPMInterface/SerialDPMInterface.c
- src/STMATB/profibus\_processor/ppfnc/serialDPMInterface/SerialDPMInterface.h
- src/STMATB/profibus\_processor/ppfnc/serialDPMInterface/TKitUser.c
- src/STMATB/profibus\_processor/ppfnc/serialDPMInterface/dpm\_interface\_helper.c

[ Verified ]

#### STMA-77573 - Module PPFp:

- src/STMATB/profibus\_processor/ppfp/hm\_module.c
- src/STMATB/profibus\_processor/ppfp/hm\_module.h
- src/STMATB/profibus\_processor/ppfp/ppfp\_getset.c
- src/STMATB/profibus\_processor/ppfp/ppfp\_getset.h
- src/STMATB/profibus\_processor/ppfp/ppfp\_module.c
- src/STMATB/profibus\_processor/ppfp/ppfp\_module.h
- src/STMATB/profibus\_processor/ppfp/ppfp\_module\_state.h
- src/STMATB/profibus\_processor/ppfp/tiva/hm\_helper.c

[ Verified ]

#### STMA-77566 - Module Safety Layers:

- src/STMATB/functional\_processor/sl/local\_reference\_clock/lc\_loc\_ref\_clock.c
- src/STMATB/functional\_processor/sl/local\_reference\_clock/lc\_loc\_ref\_clock.h
- src/STMATB/functional\_processor/sl/local\_reference\_clock/lc\_module.c
- src/STMATB/functional\_processor/sl/local\_reference\_clock/lc\_module.h
- src/STMATB/functional\_processor/sl/local\_reference\_clock/lc\_module\_state.h
- src/STMATB/functional\_processor/sl/local\_reference\_clock/lc\_time\_adjustment\_table.c
- src/STMATB/functional\_processor/sl/local\_reference\_clock/lc\_time\_adjustment\_table.h
- src/STMATB/functional\_processor/sl/multicast\_processing/mc\_connection.c
- src/STMATB/functional\_processor/sl/multicast\_processing/mc\_connection.h
- src/STMATB/functional\_processor/sl/multicast\_processing/mc\_connection\_table.c
- src/STMATB/functional\_processor/sl/multicast\_processing/mc\_connection\_table.h
- src/STMATB/functional\_processor/sl/multicast\_processing/mc\_module.c
- src/STMATB/functional\_processor/sl/multicast\_processing/mc\_module.h
- src/STMATB/functional\_processor/sl/multicast\_processing/mc\_telegram.c
- src/STMATB/functional\_processor/sl/multicast\_processing/mc\_telegram.h
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_check\_action.c

- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_check\_action.h
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_connection.c
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_connection.h
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_connection\_table.c
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_connection\_table.h
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_module.c
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_module.h
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_telegram.c
- src/STMATB/functional\_processor/sl/point\_to\_point\_processing/pp\_telegram.h
- src/STMATB/functional\_processor/sl/sl\_error\_tracking.c
- src/STMATB/functional\_processor/sl/sl\_error\_tracking.h
- src/STMATB/functional\_processor/sl/sl\_getset.c
- src/STMATB/functional\_processor/sl/sl\_getset.h
- src/STMATB/functional\_processor/sl/sl\_module.c
- src/STMATB/functional\_processor/sl/sl\_module.h
- src/STMATB/functional\_processor/sl/sl\_module\_state.h
- src/STMATB/functional\_processor/sl/sl\_xtypes.h
- src/STMATB/functional\_processor/sl/telegram\_analysis/sl\_telegram\_base.c
- src/STMATB/functional\_processor/sl/telegram\_analysis/sl\_telegram\_base.h
- src/STMATB/functional\_processor/sl/telegram\_analysis/sl\_telegram\_table.c
- src/STMATB/functional\_processor/sl/telegram\_analysis/sl\_telegram\_table.h

[ Verified]

#### STMA-77565 - Module STM Layer:

- src/STMATB/functional\_processor/stm/atb\_postprocessor/apo\_module.c
- src/STMATB/functional\_processor/stm/atb\_postprocessor/apo\_module.h
- src/STMATB/functional\_processor/stm/atb\_postprocessor/apo\_module\_state.h
- src/STMATB/functional\_processor/stm/atb\_preprocessor/are\_module.c
- src/STMATB/functional\_processor/stm/atb\_preprocessor/are\_module.h
- src/STMATB/functional\_processor/stm/atb\_preprocessor/are\_module\_state.h
- src/STMATB/functional\_processor/stm/multicast\_sm/isdostm\_multicast\_sm.c
- src/STMATB/functional\_processor/stm/multicast\_sm/isdostm\_multicast\_sm.h
- src/STMATB/functional\_processor/stm/multicast\_sm/stm\_multicast\_env.h
- src/STMATB/functional\_processor/stm/multicast\_sm/stm\_multicast\_sm\_imp.c
- src/STMATB/functional\_processor/stm/multicast\_sm/stm\_multicast\_sm\_imp.h
- src/STMATB/functional\_processor/stm/packet\_analyser/pka\_module.c
- src/STMATB/functional\_processor/stm/packet\_analyser/pka\_module.h
- src/STMATB/functional\_processor/stm/packet\_analyser/pka\_packet\_extract.c
- src/STMATB/functional\_processor/stm/packet\_analyser/pka\_packet\_extract.h
- src/STMATB/functional\_processor/stm/point\_to\_point\_sm/isdostm\_connection\_sm.c
- src/STMATB/functional\_processor/stm/point\_to\_point\_sm/isdostm\_connection\_sm.h
- src/STMATB/functional\_processor/stm/point\_to\_point\_sm/stm\_connection\_env.h
- src/STMATB/functional\_processor/stm/point\_to\_point\_sm/stm\_connection\_sm\_imp.c
- src/STMATB/functional\_processor/stm/point\_to\_point\_sm/stm\_connection\_sm\_imp.h
- src/STMATB/functional\_processor/stm/stm\_atb\_sm/isdostm\_atb\_sm.c
- src/STMATB/functional\_processor/stm/stm\_atb\_sm/isdostm\_atb\_sm.h
- src/STMATB/functional\_processor/stm/stm\_atb\_sm/stm\_atb\_env.h
- src/STMATB/functional\_processor/stm/stm\_atb\_sm/stm\_atb\_sm\_imp.c
- src/STMATB/functional\_processor/stm/stm\_atb\_sm/stm\_atb\_sm\_imp.h
- src/STMATB/functional\_processor/stm/stm\_internal\_sm/isdostm\_internal\_sm.c
- src/STMATB/functional\_processor/stm/stm\_internal\_sm/isdostm\_internal\_sm.h
- src/STMATB/functional\_processor/stm/stm\_internal\_sm/stm\_internal\_env.h
- src/STMATB/functional\_processor/stm/stm\_internal\_sm/stm\_internal\_sm\_imp.c
- src/STMATB/functional\_processor/stm/stm\_internal\_sm/stm\_internal\_sm\_imp.h



- src/STMATB/functional\_processor/stm/stml\_cabsignals.c
- src/STMATB/functional\_processor/stm/stml\_cabsignals.h
- src/STMATB/functional\_processor/stm/stml\_getset.c
- src/STMATB/functional\_processor/stm/stml\_getset.h
- src/STMATB/functional\_processor/stm/stml\_jru.c
- src/STMATB/functional\_processor/stm/stml\_jru.h
- src/STMATB/functional\_processor/stm/stml\_module.c
- src/STMATB/functional\_processor/stm/stml\_module.h
- src/STMATB/functional\_processor/stm/stml\_module\_state.h
- src/STMATB/functional\_processor/stm/stml\_packet\_factory.c
- src/STMATB/functional\_processor/stm/stml\_packet\_factory.h
- src/STMATB/functional\_processor/stm/stml\_types.h
- src/STMATB/functional\_processor/stm/stml\_wanted\_connections.c
- src/STMATB/functional\_processor/stm/stml\_wanted\_connections.h

[ Verified]

#### STMA-77568 - Module Tiva ROM Functions:

- src/STMATB/tiva\_drivers/tivastart/gpio.h
- src/STMATB/tiva\_drivers/tivastart/hw\_memmap.h
- src/STMATB/tiva\_drivers/tivastart/hw\_timer.h
- src/STMATB/tiva\_drivers/tivastart/pin\_map.h
- src/STMATB/tiva\_drivers/tivastart/reduced\_gpio.c
- src/STMATB/tiva\_drivers/tivastart/reduced\_ssi.c
- src/STMATB/tiva\_drivers/tivastart/reduced\_sysctl.c
- src/STMATB/tiva\_drivers/tivastart/reduced\_timer.c
- src/STMATB/tiva\_drivers/tivastart/reduced\_uart.c
- src/STMATB/tiva\_drivers/tivastart/ssi.h
- src/STMATB/tiva\_drivers/tivastart/sysctl.h
- src/STMATB/tiva\_drivers/tivastart/timer.h
- src/STMATB/tiva\_drivers/tivastart/tm4c123gh6pz\_startup\_ccs.c
- src/STMATB/tiva\_drivers/tivastart/tm4c123gh6pz\_startup\_ccs.h
- src/STMATB/tiva\_drivers/tivastart/uart.h

[ Verified]

#### STMA-77567 - Module Companion Chip Library:

- src/STMATB/hercules\_drivers/tps/tps\_config.h
- src/STMATB/hercules\_drivers/tps/tps\_debugsupport.c
- src/STMATB/hercules\_drivers/tps/tps\_debugsupport.h
- src/STMATB/hercules\_drivers/tps/tps\_driver.c
- src/STMATB/hercules\_drivers/tps/tps\_driver.h
- src/STMATB/hercules\_drivers/tps/tps\_interface.c
- src/STMATB/hercules\_drivers/tps/tps\_interface.h
- src/STMATB/hercules\_drivers/tps/tps\_priv.h
- src/STMATB/hercules\_drivers/tps/tps\_types.h

[ Verified]

#### STMA-77577 - Functional Processor Application:

- src/STMATB/functional\_processor/fpmain.c

[ Verified]

#### STMA-77576 - Profibus Processor Application:

- src/STMATB/profibus\_processor/ppmain.c

