TFM CONFIGURATION PROPOSAL

Andrej Butok
MARCH 2023

NXP SECURE CONNECTIONS FOR A SMARTER WORLD
CONTENTS

TFM configuration:

• Current state
• Proposal
TFM CONFIGURATION - CURRENT STATE

- **TFM configuration** defined by `config_tfm.h`, which includes:
  - `PROJECT_CONFIG_HEADER_FILE`:
    - `config/profile/config_profile_<type>.h`
  - `TARGET_CONFIG_HEADER_FILE`:
    - `platform/ext/target/<vendor>/<board>/config_tfm_target.h`

- **Issues**:
  - There is no clear possibility to change default parameters:
    - No possibility to change parameters which are already defined in `PROJECT_CONFIG_HEADER_FILE` via project definitions or cmake.
    - `PROJECT_CONFIG_HEADER_FILE` has a higher priority than `TARGET_CONFIG_HEADER_FILE`.
    - Possible workaround, to change the default configuration:
      - use `#undef` in `TARGET_CONFIG_HEADER_FILE`
      - define new `PROJECT_CONFIG_HEADER_FILE`
  - PSA API Test application does not use standard TFM profile configurations. Instead, it has own configuration `config_test_psa_api.h`
TFM CONFIGURATION - PROPOSAL

- All default configuration parameters should be covered by `#ifdef`.
- Change configuration priority
  - From:
    1. PROJECT_CONFIG_HEADER_FILE: config/profile/config_profile_<type>.h
    2. TARGET_CONFIG_HEADER_FILE: platform/ext/target/<vendor>/<board>/config_tfm_target.h
  - To:
    1. Project global definitions
    2. TARGET_CONFIG_HEADER_FILE: platform/ext/target/<vendor>/<board>/config_tfm_target.h
    3. PROJECT_CONFIG_HEADER_FILE: config/profile/config_profile_<type>.h
- PSA API Test application should use a standard TFM profile configuration instead own one.
- Other improvements:
  - Use a common prefix TFM_CFG_<parameter_name> for configuration parameters.
  - All standard definitions should be predefined to a default values.

For example, to change:

From:
```
#ifdef OTP_NV_COUNTERS_RAM_EMULATION
#define PLATFORM_SERVICE_INPUT_BUFFER_SIZE 64
#endif
```

To:
```
#ifndef TFM_CFG_OTP_NV_COUNTERS_RAM_EMULATION
#define TFM_CFG_OTP_NV_COUNTERS_RAM_EMULATION 0
#endif
```

Q&A