STM32L4 – Device Electronic Signature
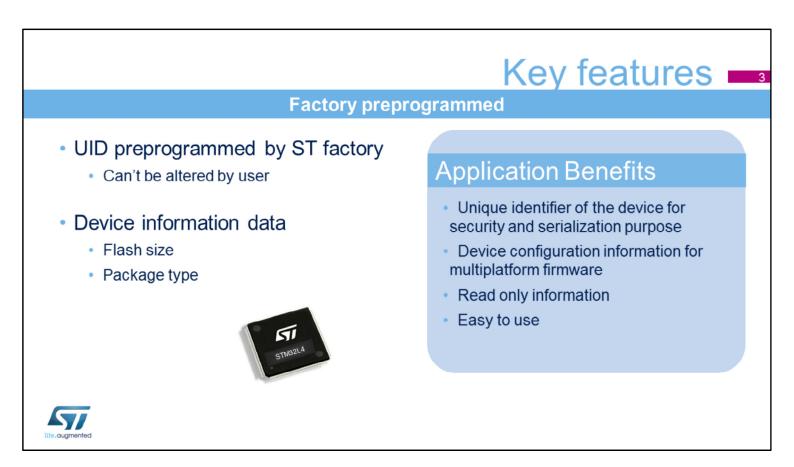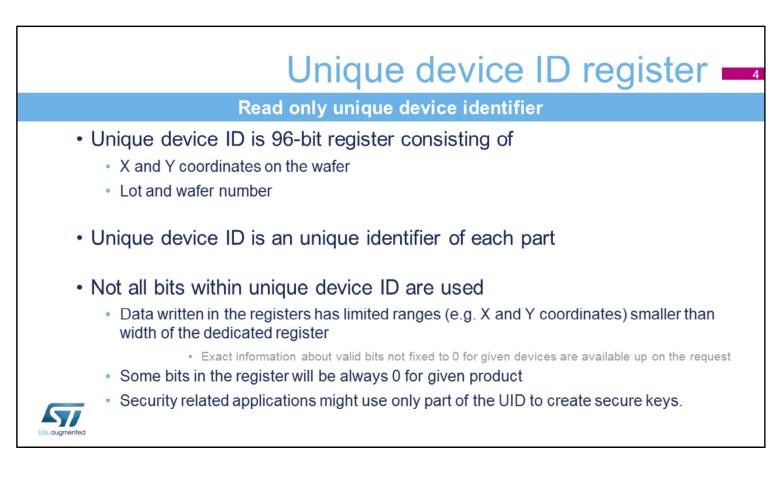
Revision 1

ST life.augmented

Hello, and welcome to this presentation of the STM32 Device Electronic Signature which may be used as a device identification or serial number.

- Device Electronic Signature provides device identification readable by application
  - 96 bits of Unique ID
  - Flash size & package type information

Application benefits

- Security key & serial numbering
- Licensing of software – SW house could limit use of delivered firmware to given UID range
- Application could determine package type and memory size when used in multiplatform firmware

STM32L4

The device electronic signature provides a set of registers containing die identification, unique device identifier UID, other device information such as memory size, package type, and device calibration information. Application benefits are: – a unique identifier can be used as a part of security keys, as a serial number, or control of software distribution/licensing based on UID.

Factory preprogrammed

- UID preprogrammed by ST factory
  - Can't be altered by user

- Device information data
  - Flash size
  - Package type

Application Benefits

- Unique identifier of the device for security and serialization purpose
- Device configuration information for multiplatform firmware
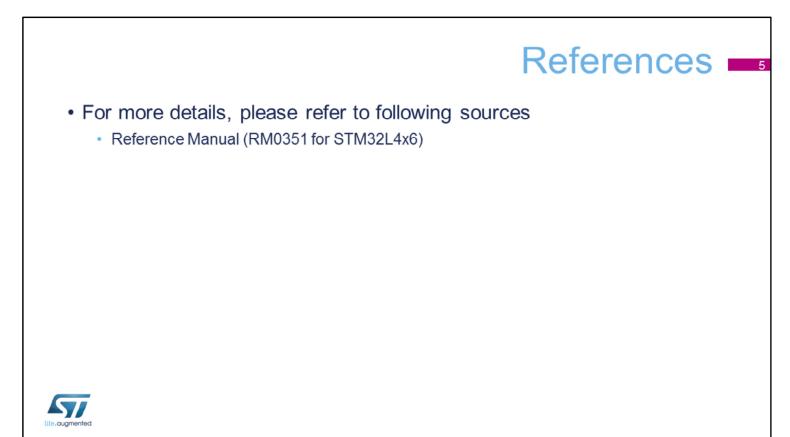- Read only information
- Easy to use

Unique identifier and other device information are preprogrammed by ST factory and can't be altered by user. This identifier can be used as a security key or serial number, as well as an identifier for software licensing. Information stored in these registers can't be altered by the user.

Unique device ID register

Read only unique device identifier

- Unique device ID is 96-bit register consisting of
    - X and Y coordinates on the wafer
    - Lot and wafer number

- Unique device ID is an unique identifier of each part

- Not all bits within unique device ID are used
    - Data written in the registers has limited ranges (e.g. X and Y coordinates) smaller than width of the dedicated register
        - Exact information about valid bits not fixed to 0 for given devices are available up on the request
    - Some bits in the register will be always 0 for given product
    - Security related applications might use only part of the UID to create secure keys.

Unique device identifier is a 96 bit register created from coordinates of the die on the wafer, lot number and wafer number, with certain number of bits reserved for each of those records.

This identifier is unique for each part manufactured by ST. As each record within the unique identifier has some range, like X and Y coordinates, not all the bits in the device ID are used. This is important for security related purposes, where the number of bits used is important parameter. Such applications may use only part of the device ID and avoid using the fixed bits.

References

- For more details, please refer to following sources
  - Reference Manual (RM0351 for STM32L4x6)

For detailed information, please refer mainly to device reference manual and datasheet.