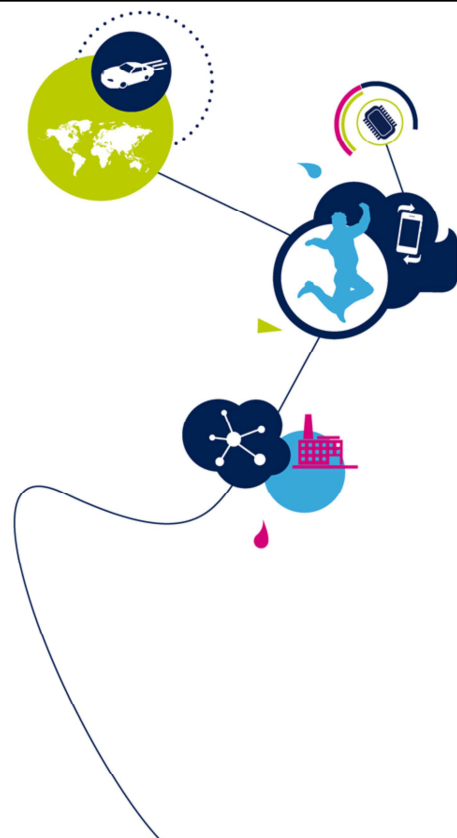# STM32H7 – DES

Device Electronic Signature
Revision 1.0

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

- The Device Electronic Signature provides unique device information that can be read by applications including
  - 96 bit-long unique ID (UID)
  - Flash memory size & package type information

Application benefits

- Unique device identifier can be used for security and serial numbering schemes
- Device configuration information for multi-platform firmware
- Read-only information
- Easy to use and implement

The device electronic signature provides a set of registers containing die identification, unique device identifier (UID), and other read-only device information such as memory size, package type, and device calibration information.

Applications can benefit from a unique identifier that can be used as a serial number or as part of a security key. It can also be used to manage software distribution/licensing features based on the UID.

Pre-programmed at ST factory

- UID pre-programmed at ST factory
  - Cannot be altered by user

- Device information data
  - Flash memory size
  - Package type

Application benefits

- Can be used as a serial number or part of a security key
- Software licensing: Specific UID range can be used to limit functions/features of delivered firmware
- Applications can determine package type and memory size when used with multi-platform firmware

The unique identifier and other device information are pre-programmed at the ST factory and cannot be altered by users. This identifier can be used as a security key or serial number, as well as an identifier for software licensing. Multi-platform firmware can use the UID to determine package type and memory size for managing application functions and features.

Unique device ID register

Read only unique device identifier

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

- Unique ID is an unique identifier for each device

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

The unique device identifier is a 96-bit register that contains the coordinates of the die on the wafer, lot number and wafer number.
This identifier is unique for each device manufactured by ST.
As each record within the unique identifier has a given range, like the 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 an important parameter. Such security applications can only use part of the device ID and should avoid using the "fixed" bits.

- For more details, please refer to following sources
  - STM32H7xx MCU reference manuals

For detailed information, please refer to the device's reference manuals and datasheet.