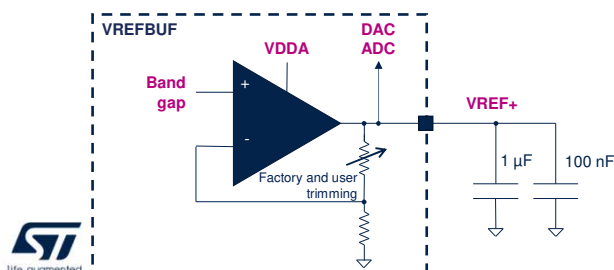




Hello, and welcome to this presentation of the STM32U5 Voltage Reference buffer. It covers the main features of this block, which creates an on-chip reference voltage.

VREFBUF

- VREFBUF functionalities and improvements
 - More output voltage choices
 - 1.5V, 1.8V, 2.048V and 2.5V
 - Calibration done on each output voltage during production tests
 - When the VRS bit changes, the calibration value will be automatically uploaded to the trim register from the engineering option bytes (L5 software trim data copy is necessary)
 - VREFBUF is available in packages with more than 100 pins



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The VREF buffer embedded in STM32U5 microcontrollers provides a stable voltage based on an internal bandgap reference for use by both the analog-to-digital and digital-to-analog converters.

When VREFBUF is used as an internal voltage reference, it is output on the VREF+ pin in order to provide this reference to external devices.

When an external voltage reference is implemented, the VREF+ pin is an input.

STM32U5 VREFBUF supports 4 different output voltages, which are 1.5, 1.8, 2.048 and 2.5V.

1.5 and 1.8 volts are new with respect to the STM32L5.

The output voltage is factory calibrated and trimming data is stored in the engineering option bits.

At reset, and each time the Voltage Reference Scale setting is changed, the calibration data is automatically loaded to the TRIM register.

In the previous version of this module, it was necessary to copy the engineering option bits to the calibration control register by software.

The VREFBUF output pin VREF+ is available only on packages having 100 pins or more.

In the LQFP48, UFQFPN48, LQFP64 and WLCSP90 packages, the VREF+ pin is double-bonded with the VDDA pin, and therefore the voltage reference buffer is not available and must be kept disabled.

Thank you

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The STM32U5's analog-to-digital and digital-to-analog converters use this VREF Buffer output.
Please refer to the training modules for these peripheral for additional information.