

New STM32U0 ultra-low-power MCU series

STM32U0 overview



Key new features and certifications



STM32 ultra-low-power demo





Target applications for STM32U0

All basic applications with constraints on energy or battery lifetime and costs

Industrial

Sensors, standalone thermostat, alarm detector, heat allocator, smoke detectors, door lock



Medical

Standalone devices :
Insulin pump, glucose meter



Smart metering

Gas & water & electricity measurement connected to a local Smart home gateway (not fiscal metering) or to an industrial network



Wellness / fitness / lifestyle

Standalone tools :
e-cigarettes, activity trackers, GPS, headphones

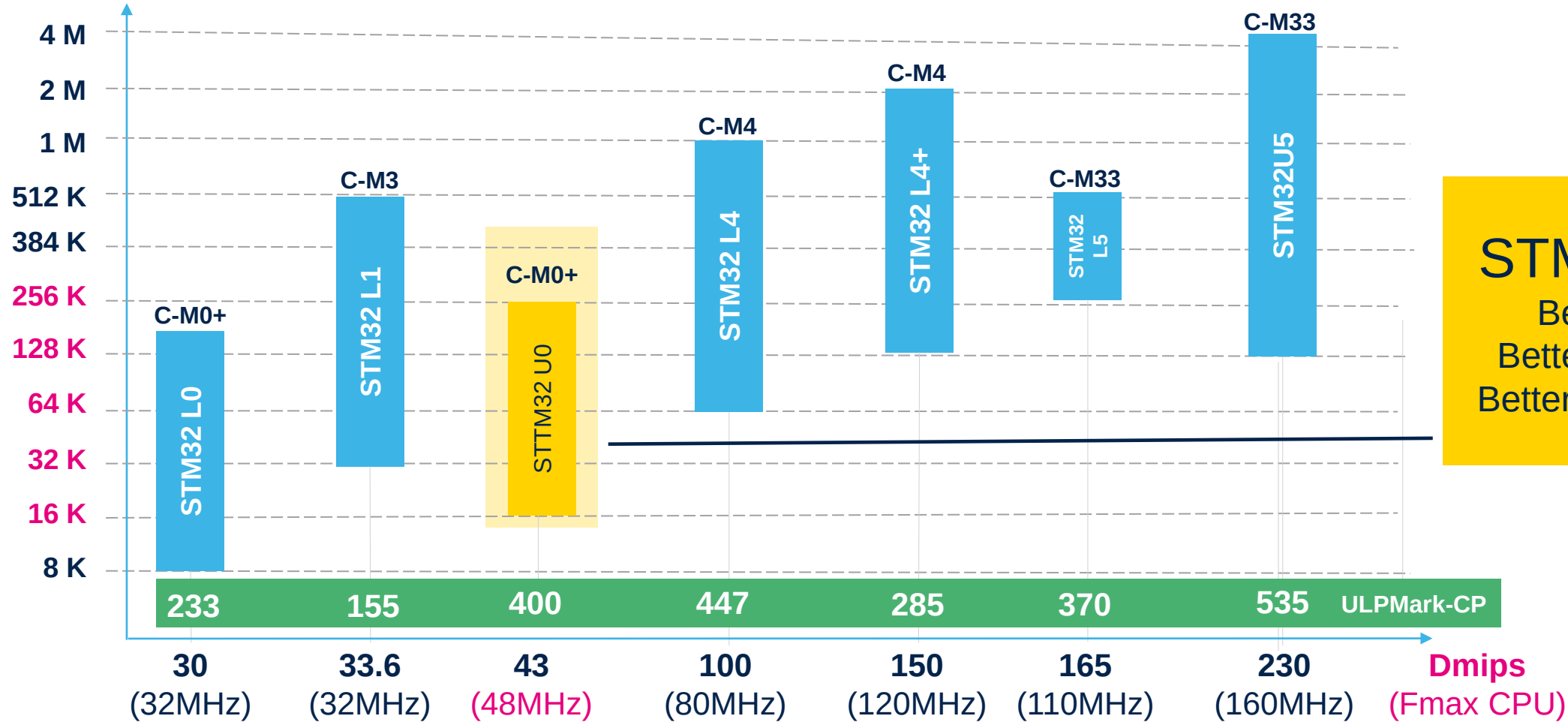




STM32U0

The new entry-level STM32 MCU ULP series

Memory size (Bytes)



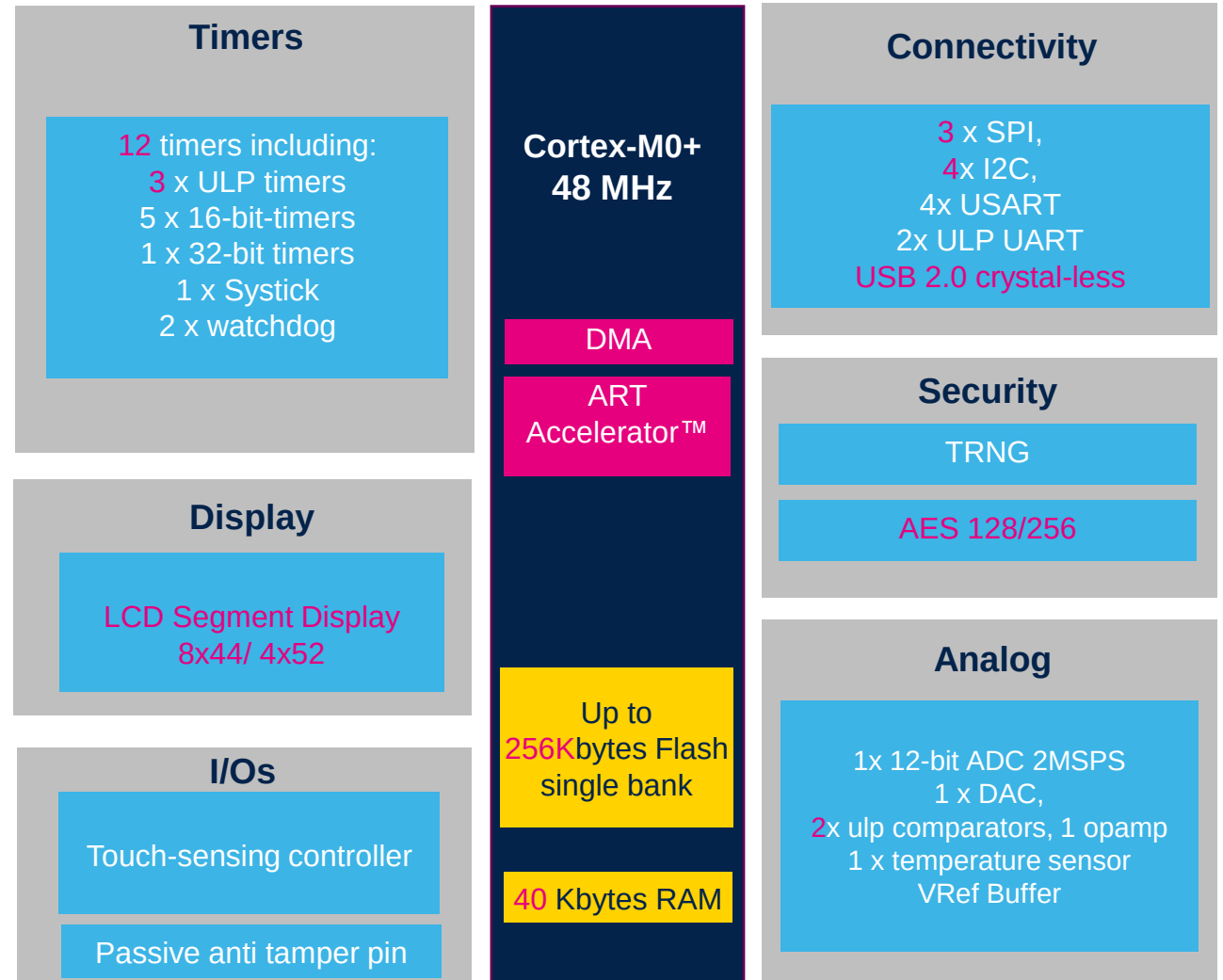
STM32U0

Better price
Better features
Better efficiency



STM32U0 block diagram

- 8 packages available from 32 to 81 pins
- Pin-to-pin compatible with STM32L0/L1/L4
- Clock sources: MSI, LSE, LSI, HSI, HSE
- PLL
- Security features :
 - Customer code protection
 - Robust read out protection
 - RDP regression with password
 - HDP protection
 - Secure boot
 - **AES 128 / 256 bits (optional)**
 - Arm PSA Certified Level 1 / SESIP Level 3
- **3** ULP timers with input capture
- VBAT mode



* Added features for this product versus 16KB to 64 KB product



Multiple options to meet the needs of developers



10 different packages

TSSOP 20 pins
UQFN 32 pins
LQFP 48 pins
LQFP 64 pins

UQFN 48 pins
UFBGA 64 pins
WLCSP 27 and 42 pins
LQFP 80 pins

UFBGA 81 pins



2 memory size configurations

64 k Flash / 12 k RAM
256 k Flash / 40 k RAM



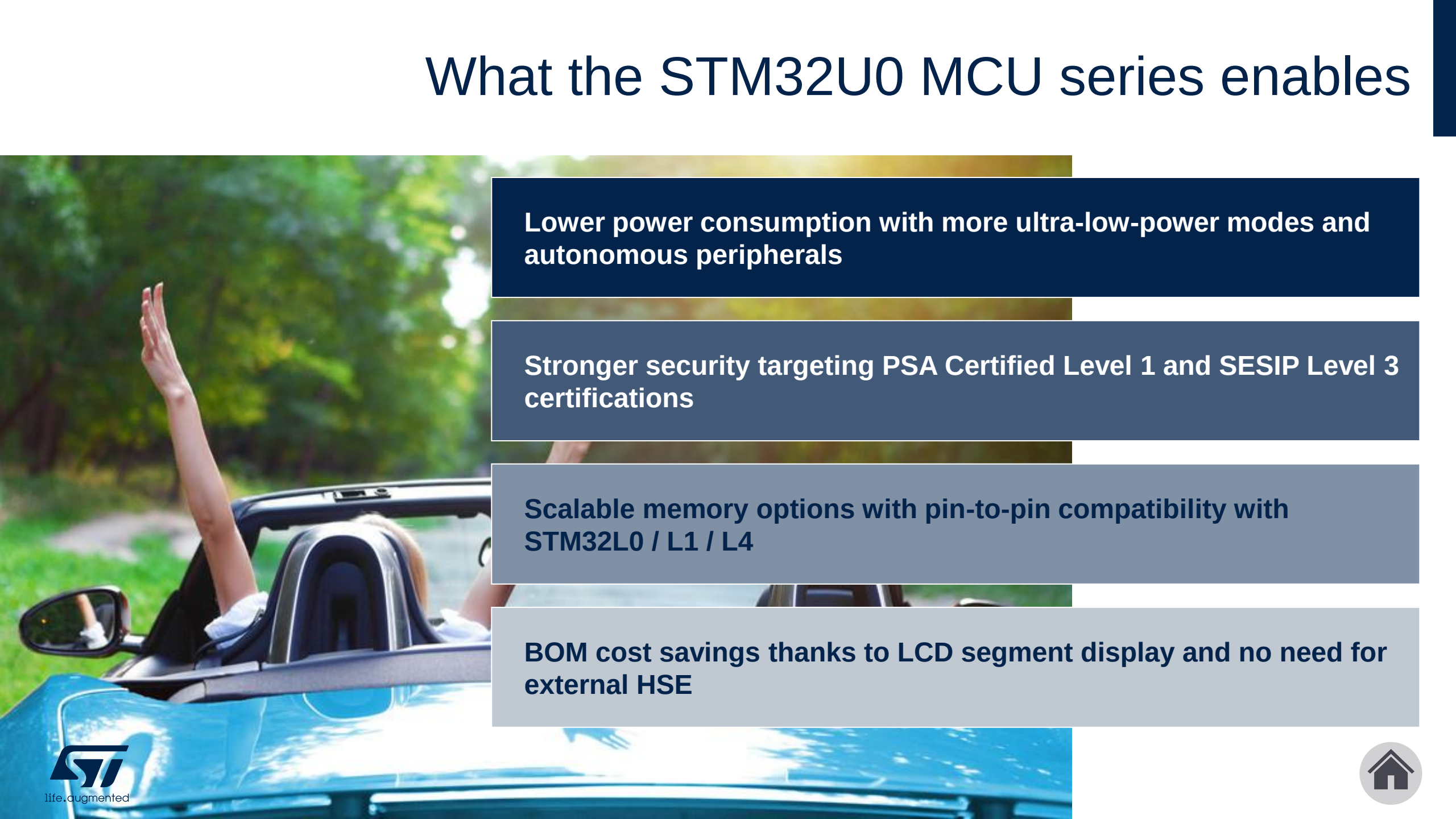
Optional security

without HW crypto
with HW crypto

**48
variants**



What the STM32U0 MCU series enables



Lower power consumption with more ultra-low-power modes and autonomous peripherals

Stronger security targeting PSA Certified Level 1 and SESIP Level 3 certifications

Scalable memory options with pin-to-pin compatibility with STM32L0 / L1 / L4

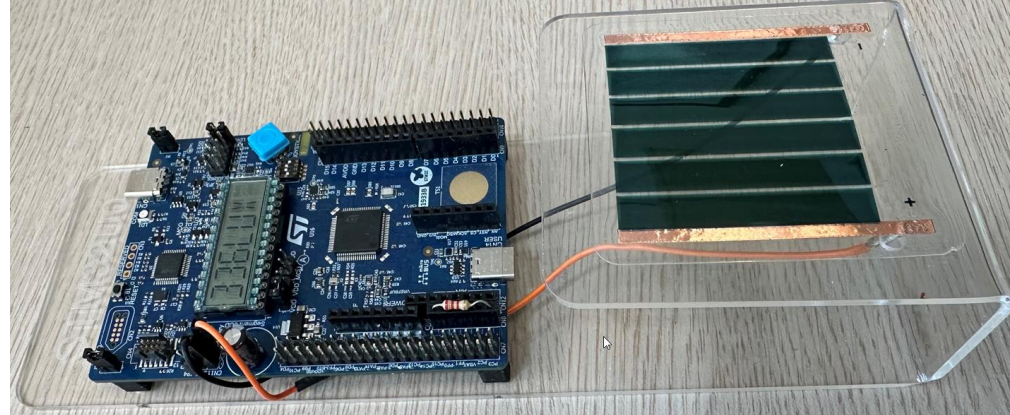
BOM cost savings thanks to LCD segment display and no need for external HSE



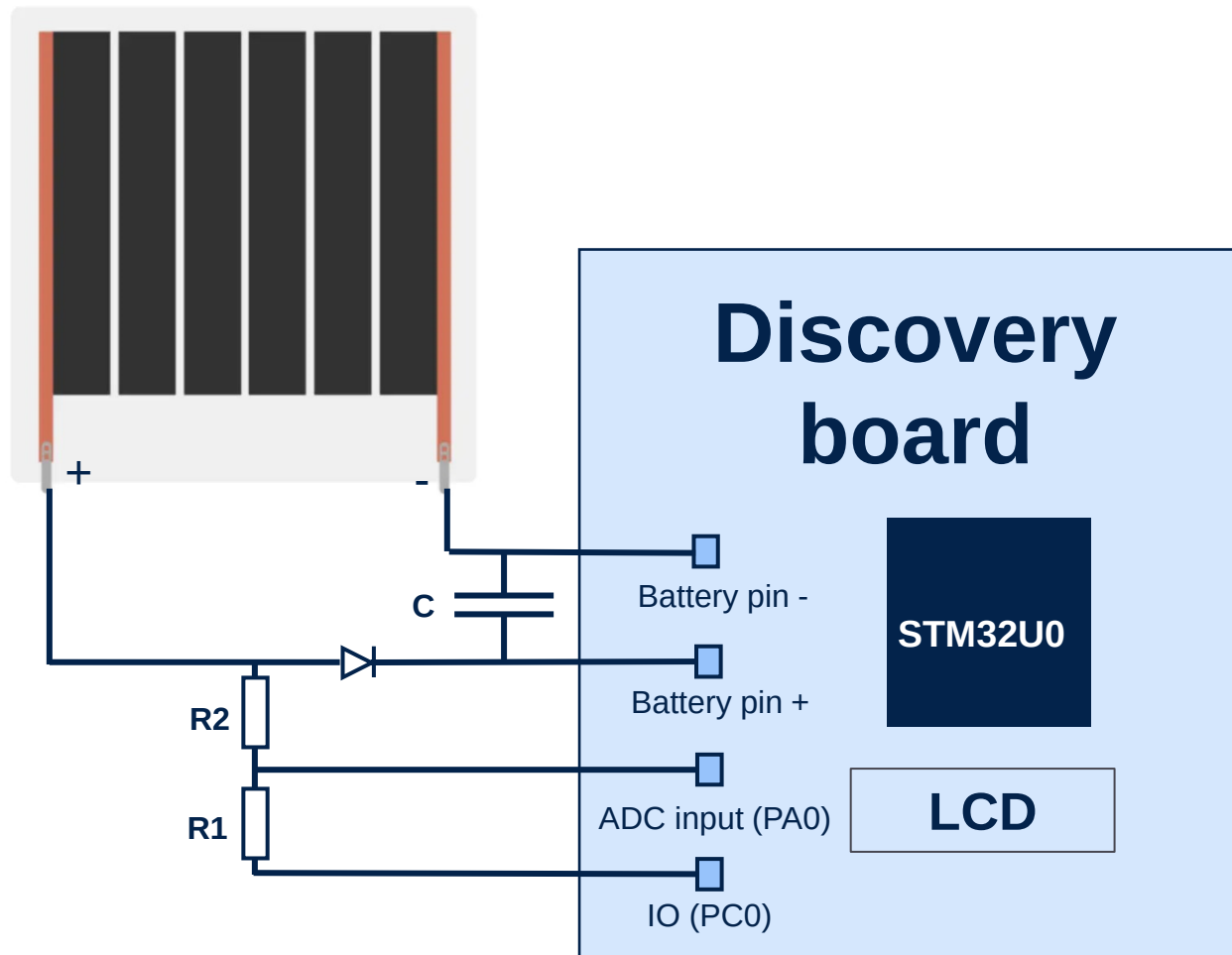
STM32U0 Lux demo

Discover the STM32U0 best-in class ultra-low power capabilities

The demo is running **without battery** with a small photovoltaic panel displaying luminosity read values (ST Partner: Dracula Technologies)



Demo measurement of ambient light



Indicative values

R1 = 2,2k Ohm

R2 = 0 Ohm

C = 100 μ F

Dracula organic photovoltaic technology

