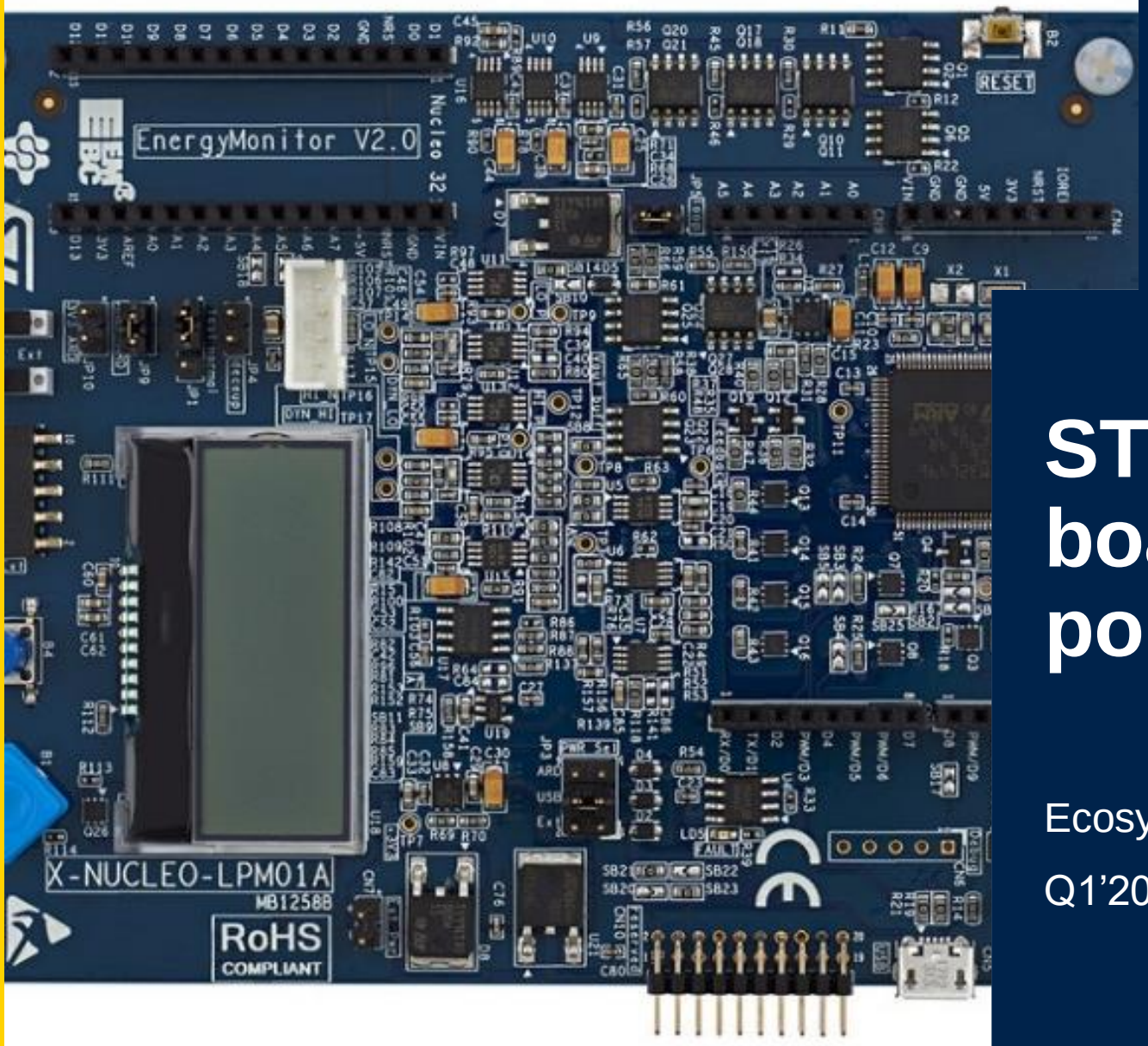


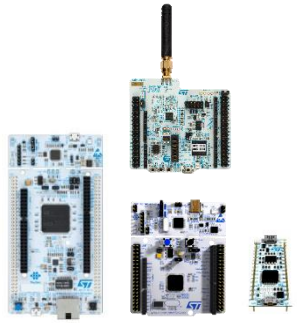
life.augmented

STM32 development boards portfolio

Ecosystem Marketing

Q1’2022

Development tools overview



STM32 Nucleo

Flexible prototyping

www.st.com/stm32nucleo



Discovery kits

Key feature prototyping

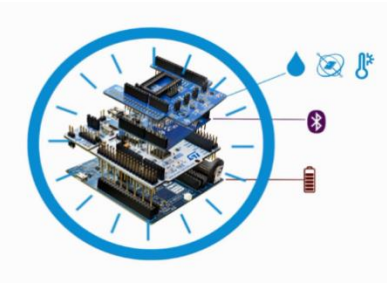
www.st.com/stm32discovery



Evaluation boards

Full feature evaluation

www.st.com/stm32evaltools



STM32 Nucleo expansion

Functionality add-on

www.st.com/x-nucleo

Move Actuate

Connect

Power Drive

Sense

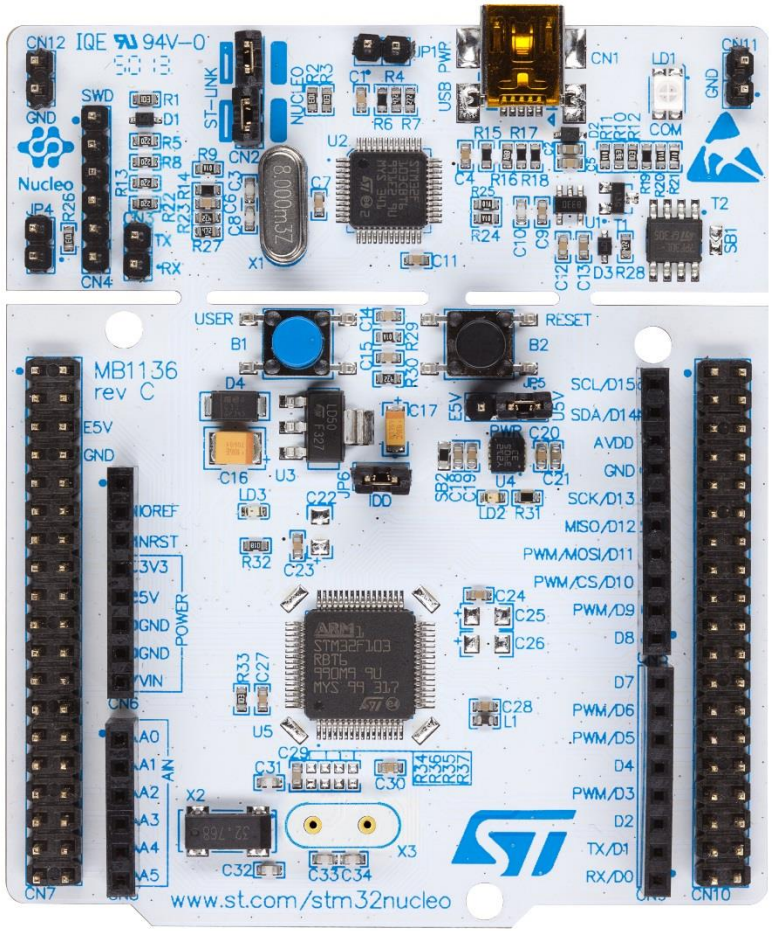
Translate



Third-party boards

From full evaluation to open hardware

STM32 Nucleo key assets



Flexible prototyping

Unlimited expansion capabilities

Simply show the whole STM32 portfolio to the communities

ARDUINO

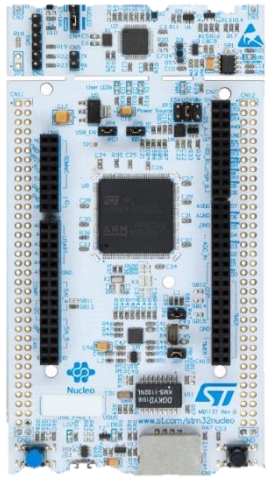
life.augmented

STM32 Nucleo form-factor choices

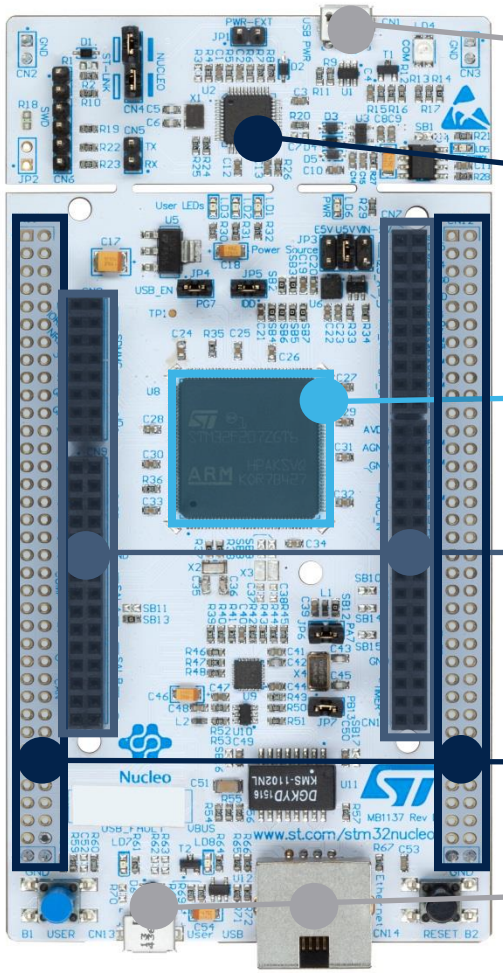
	Nucleo-32 32-pin MCU	Nucleo-64 64-pin MCU	Nucleo-144 144-pin MCU
Ethernet			***
USB			***
ST Zio (Uno extended)			***
Arduino Uno ST morpho		**	**
Arduino Nano	*		







STM32 Nucleo-144 structure



Flexible board power supply:
through USB or external source

Integrated STLink:
drag & drop device Flash programming

One STM32 MCU flavor with 144 pins

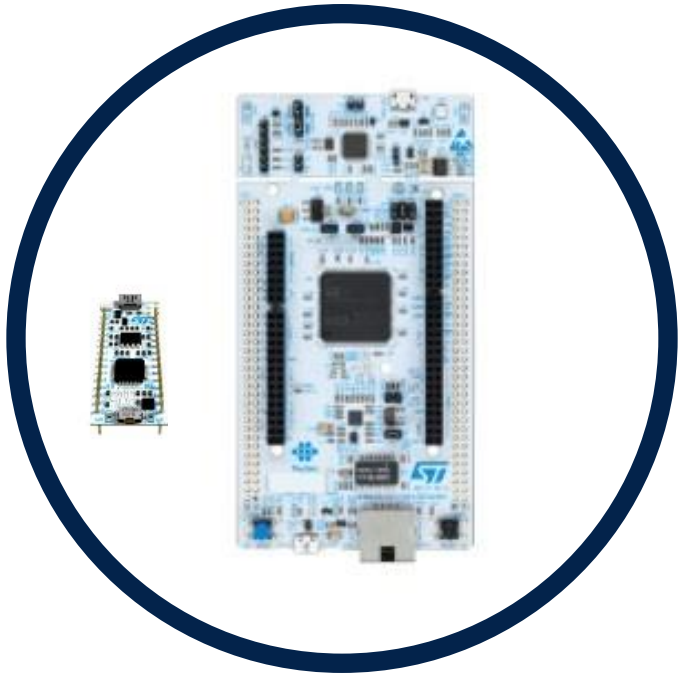
Arduino Uno & ST Zio connectors:
easy access to add-ons

ST morpho extension pins:
direct access to all MCU I/Os

Ethernet & USB OTG (optional)

Amazing STM32 Nucleo boards

Stretching boundaries



STM32H7 Nucleo-144
STM32L4 Nucleo-32

NUCLEO-H745ZI-Q

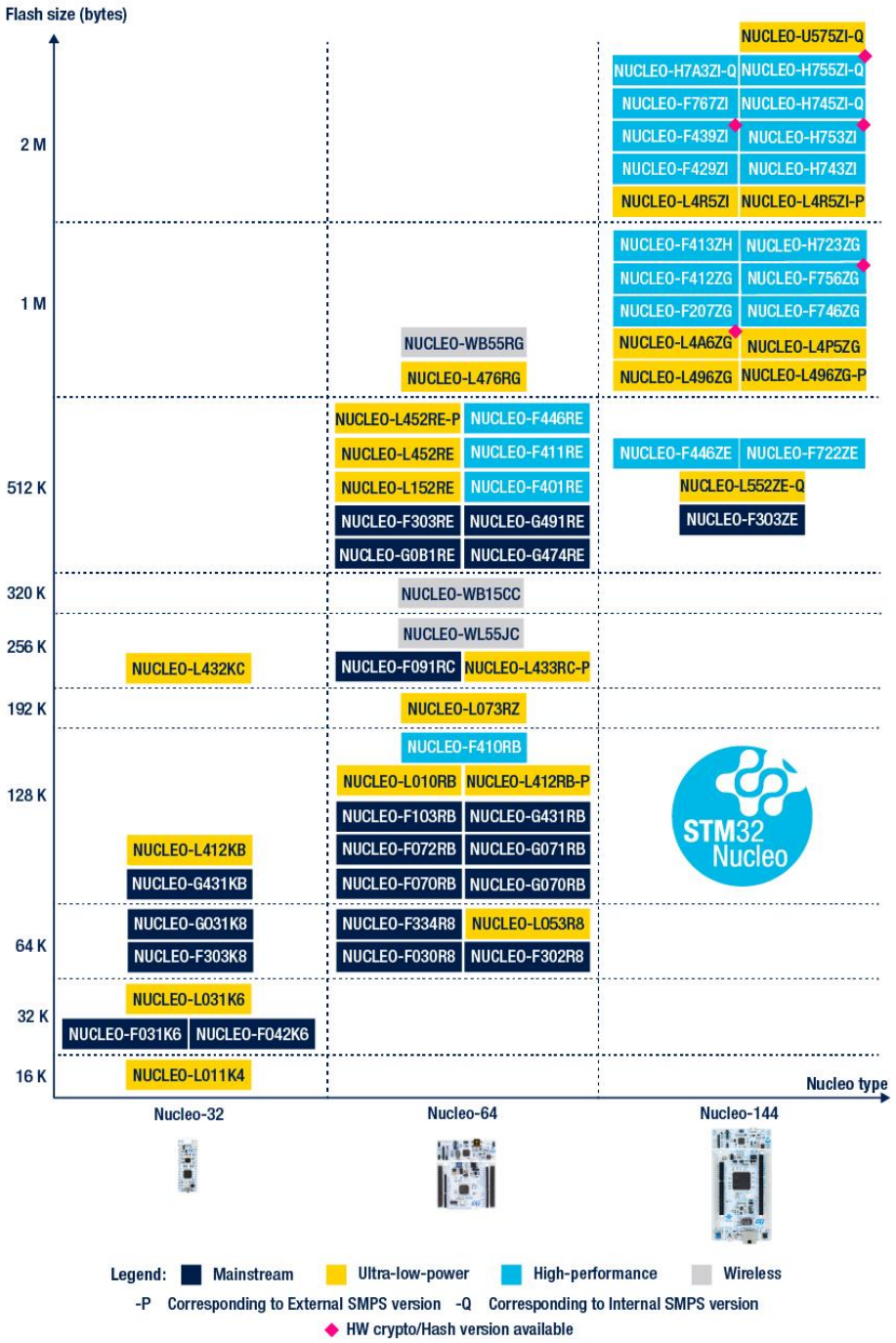
High performance
STM32H745 dual-core
CoreMark 3223

NUCLEO-L412KB

Lower power
STM32L412
ULPMark-CP 447
ULPMark-PP 167

life.augmented

STM32 Nucleo portfolio



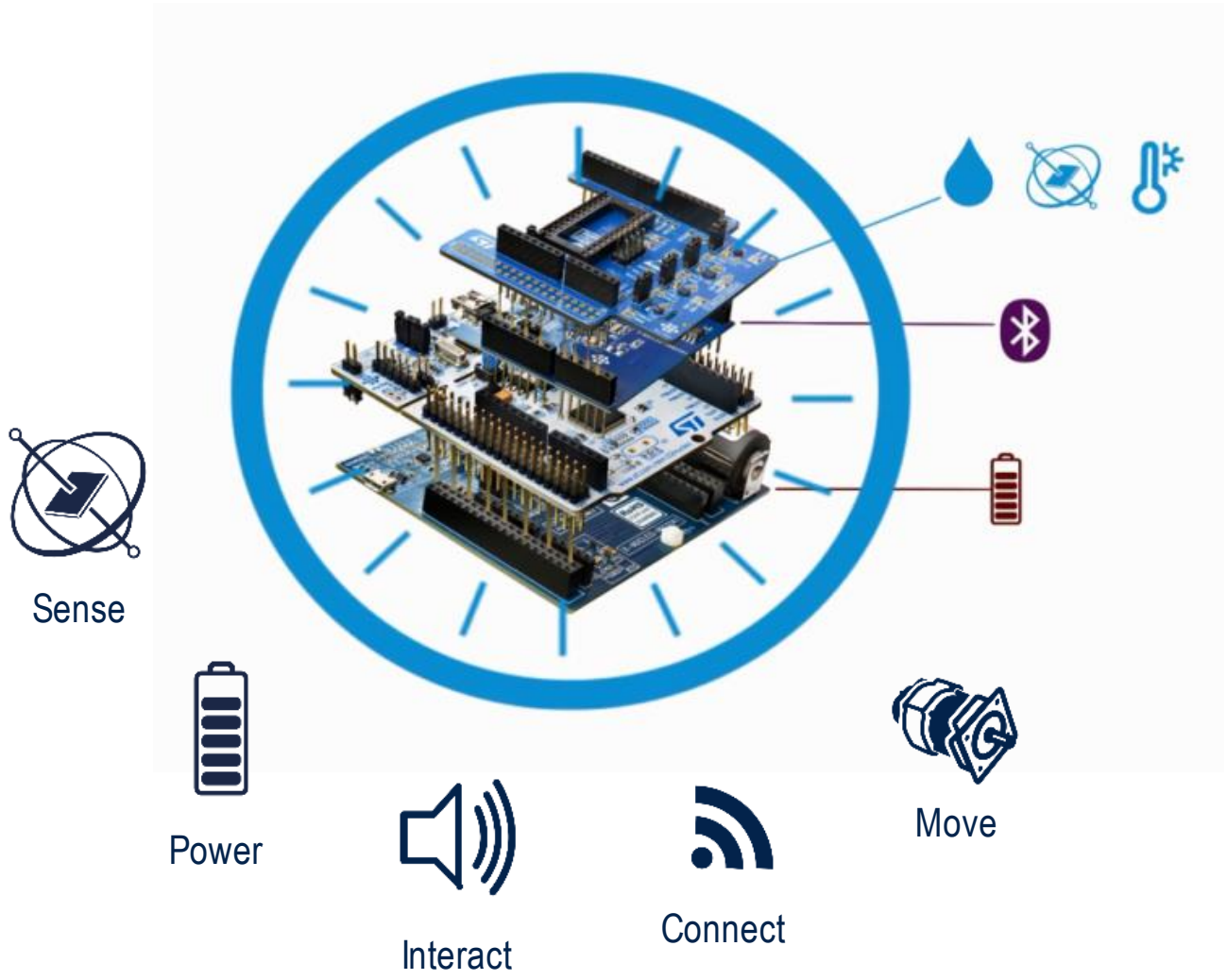
A broad range of

- Performance
- Peripherals
- Power
- Price

www.st.com/stm32nucleo

life.augmented

Association with shields



Specialized functionality add-on

Smooth integration with STM32Cube software library

Multiple IDEs (STM32CubeIDE, IAR, Arm®…)

Nucleo expansion boards from ST

Sensors and analog



X-NUCLEO-IKS02A1
MOTION AND ENVIRONMENTAL SENSORS



X-NUCLEO-53L3A2
PROXIMITY SENSOR



X-NUCLEO-CCA02M2
DIGITAL MICROPHONE



X-NUCLEO-AMICAM1
ANALOG MICROCHONE

Communication



X-NUCLEO-NFC04A1
DYNAMIC NFC TAG



X-NUCLEO-NFC06A1
NFC CARD READER



X-NUCLEO-PLM01A1
POWER LINE COMMUNICATION



X-NUCLEO-GNSS1A1
ASSISTED GNSS



X-NUCLEO-USBPDM1
USB TYPE-C



X-NUCLEO-SAFEA1
SECURE ELEMENT

Motor drive



X-NUCLEO-IHM01A1
STEPPER MOTOR DRIVER



X-NUCLEO-IHM02A1
TWO AXIS STEPPER MOTOR DRIVER



X-NUCLEO-IHM03A1
HIGH POWER STEPPER MOTOR DRIVER



X-NUCLEO-IHM04A1
DUAL BRUSH DC MOTOR DRIVER



X-NUCLEO-IHM05A1
BIPOLAR STEPPER MOTOR DRIVER



X-NUCLEO-IHM06A1
LOW VOLTAGE STEPPER MOTOR DRIVER



X-NUCLEO-IHM07M1
STEPPER MOTOR DRIVER



X-NUCLEO-IHM16M1
THREE-PHASE BRUSHLESS MOTOR DRIVER

Translate



X-NUCLEO-IKA01A1
MULTIFUNCTIONAL EXPANSION BASED ON OPERATIONAL AMPLIFIERS



X-NUCLEO-CCA01M1
SOUND TERMINAL



X-NUCLEO-LED61A1
LED DRIVER



X-NUCLEO-GFX01M2
GRAPHICAL DISPLAY

More references at:
www.st.com/x-nucleo

STM32 power shield key assets

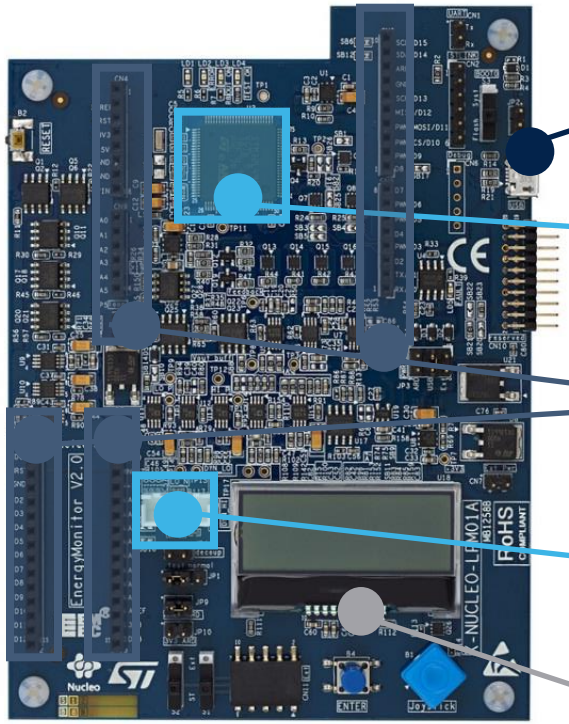
Accurate power profiling



- Ultra-low power consumption measurements
- Compatible with all Nucleo form factors (32 / 64 / 144)
- Graphical analysis with STM32CubeMonitor-Power tool
- Custom test sessions with scripting
- Reference tool for EEMBC ULPMark benchmark

STM32 power shield anatomy

STM32 Power Shield anatomy



Power supply through USB

STM32L496VGT6 MCU @ 80 MHz
3 x 12-bit ADC @ 3.2 Msamples/s

Arduino connectors compatible with
Nucleo-32, 64 & 144 boards

4-wire connector
for any type of target board

Local display:
EEMBC ULPBench score

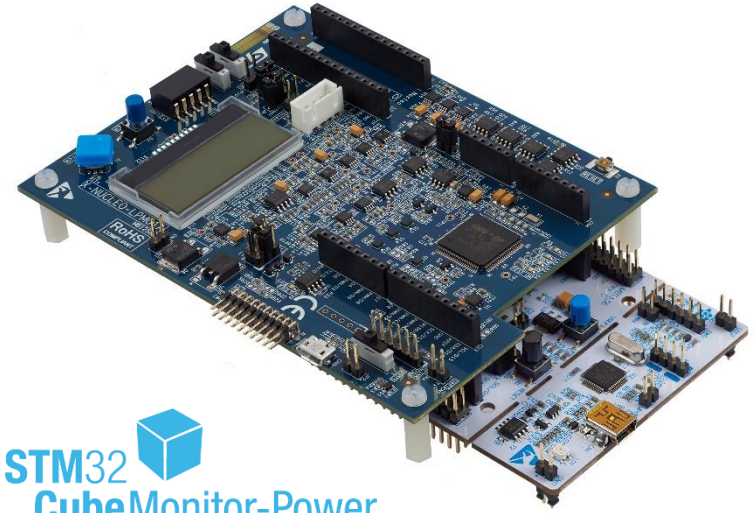
life.augmented

More information at:
www.st.com/x-nucleo

STM32 power profiling

X-NUCLEO-LPM01A

- Ultra-low-power consumption measurements:
  - Supply target board from 1.8 to 3.3V
  - Dynamic current from 100 nA to 50 mA
  - Static current from 1 nA to 200 mA
  - Accuracy approximately 2%
- Intuitive user experience:
  - Two operating modes (stand-alone or PC-controlled)
  - Graphical PC application (multi-OS)
- Resale price (RRP) $70
- Official EEMBC Energy Monitor v2.0:
  - Direct computation of ULPMark scores



STM32 CubeMonitor-Power



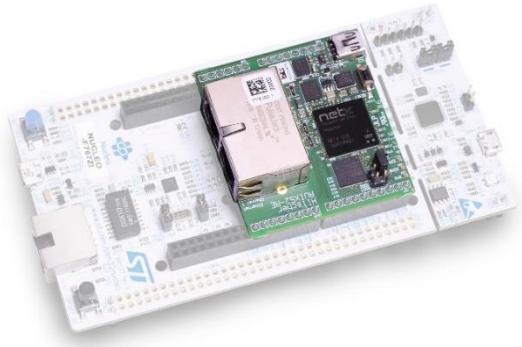
www.st.com/stm32cubemonpwr

Nucleo expansion boards from 3rd parties



I-NUCLEO-LRWAN1
By USI®

LoRaWAN communication
Frequency range from 868 to 930 MHz
LoRaWAN-compliant protocol stack



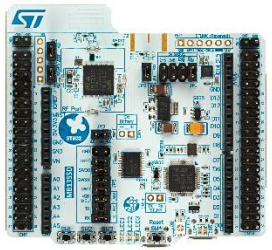
I-NUCLEO-NETX
By Hilscher

Industrial Ethernet protocols
PROFINET®, Ethernet/IP™, EtherCAT, POWERLINK, Sercos®, and Modbus®

More information at:
www.st.com/stm32evaltools

Nucleo boards for wireless communication

NUCLEO-WB55RG
By ST

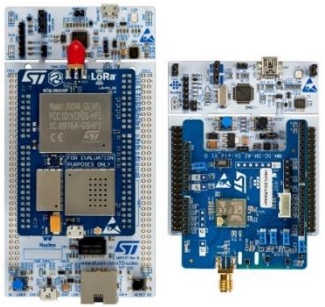


Bluetooth 5
zigbee
OPENTHREAD

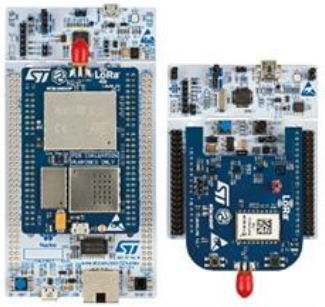
Multiprotocol RF transceiver
Bluetooth™ 5.2 and IEEE 802.15.4-2011 compliant

LoRaWAN node & gateway
LRWAN2 frequency > 800 MHz,
LRWAN3 frequency < 500 MHz,
LoRaWAN-compliant protocol stack

LoRa



P-NUCLEO-LRWAN2
By ST and USI



P-NUCLEO-LRWAN3
By ST and RisingHF

NUCLEO-WL55JC
By ST



LoRa
sigfox
M-Bus wireless

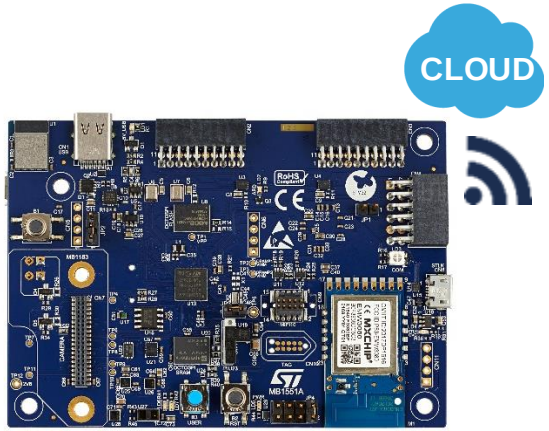
Long Range wireless node
Frequency range 150-960 MHz
LoRa, (G)FSK, (G)MSK, BPSK modulations
LoRaWAN, Sigfox-compliant protocol stack

life.augmented

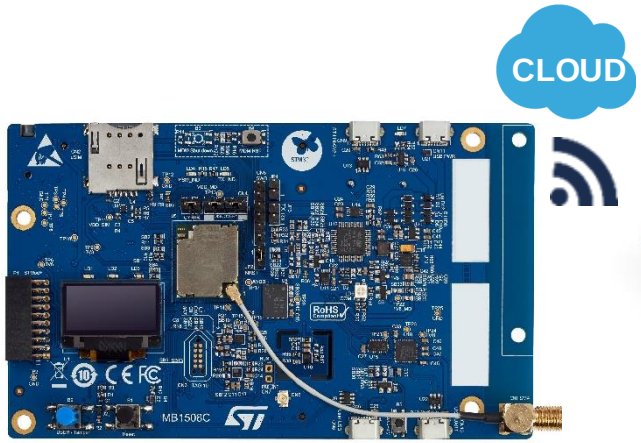
Latest discovery kits



STM32WB5MM-DK



B-U585I-IOT02A



B-L462E-CELL1



B-L072Z-LRWAN1



STM32G0316-DISCO



B-G474E-DPOW1



STM32H735G-DK



STM32MP157F-DK2

Discovery kit portfolio 1/5

STM32F0

STM32F1

STM32F3

STM32G0

STM32G4

Part number	MCU	USB	Audio	Display	Connectivity	Expansion	STLink
STM32F0DISCOVERY	STM32F051					Proprietary	V2
32F072BDISCOVERY	STM32F072	x				Proprietary	V2
STM32VLDISCOVERY	STM32F100					Proprietary	V2
STM32F3DISCOVERY	STM32F303	x				Proprietary	V2
32F3348DISCOVERY	STM32F334					Proprietary	V2-1
STM32G0316-DISCO	STM32G031						V2-1
STM32G071B-DISCO	STM32G071	Type-C		OLED 128x64		Proprietary	V2-1
B-G431B-ESC1	STM32G431						V2-1
B-G474E-DPOW1	STM32G474	Type-C	x			Proprietary	V2-1

life.augmented

More information at:
www.st.com/stm32discovery

Discovery kit portfolio 2/5

	Part number	MCU	USB	Audio	Display	Connectivity	Expansion	STLink
STM32L0	32L0538DISCOVERY	STM32L053	x		E-paper 172x72		Proprietary	V2-1
STM32L1	32L152CDISCOVERY	STM32L152			LCD		Proprietary	V2
	B-L475E-IOT01A	STM32L475	OTG	Digital mics		BLE, SubGHz, NFC, WiFi	Arduino Uno, Pmod	V2-1
STM32L4	32L496GDISCOVERY	STM32L496	OTG	x	Color LCD 240x240	Add-on (optional)	Arduino Uno, Pmod, STmod+, MikroBus, Grove	V2-1
	B-L462E-CELL1	STM32L462	x	x	OLED 128x64	LTE Cat M, NB-IoT	Proprietary, Micro-SIM, SMA antenna, STMod+, MikroBus, Grove	V2-1
	STM32L4P5G-DK	STM32L4P5	OTG	x	Color LCD 240x240	Add-on (optional)	Arduino Uno, STmod+, MikroBus, Grove	V3
STM32L4+	32L4R9IDISCOVERY	STM32L4R9	OTG	x	Color AMOLED 390x390	Add-on (optional)	Arduino Uno, Pmod, STmod+, MikroBus, Grove	V2-1
	B-L4S5I-IOT01A	STM32L4S5	OTG	Digital mics		BLE, NFC, WiFi	Arduino Uno, Pmod	V2-1
STM32L5	STM32L562E-DK	STM32L562	Type-C	x	Color LCD 240x240	BLE	Arduino Uno, Pmod, STmod+, MikroBus, Grove	V3
STM32U5	B-U585-IOT02A	STM32U585	Type-C	x		BLE, WiFi	Arduino Uno, Pmod, STmod+, MikroBus, Grove	V3

life.augmented

More information at:
www.st.com/stm32discovery

Discovery kit portfolio 3/5

	Part number	MCU	USB	Audio	Display	Connectivity	Expansion	STLink
STM32F4	STM32F4DISCOVERY	STM32F407	OTG	x			Proprietary	V2
	32F411EDISCOVERY	STM32F411	OTG	x			Proprietary	V2
	32F412GDISCOVERY	STM32F412	OTG	x	Color LCD 240x240	Add-on (optional)	Arduino Uno	V2-1
	32F413HDISCOVERY	STM32F413	OTG	x	Color LCD 240x240	Wi-Fi	Arduino Uno	V2-1
	32F429IDISCOVERY	STM32F429	OTG		Color LCD QVGA	Add-on (optional)	Arduino Uno	V2
	32F469IDISCOVERY	STM32F469	OTG	x	Color LCD 800x480	Add-on (optional)	Arduino Uno	V2-1
STM32F7	32F723EDISCOVERY	STM32F723	OTG HS	x	Color LCD 240x240	Add-on (optional)	Arduino Uno, Pmod, STMod+, MikroBus, Grove	V2-1
	32F746GDISCOVERY	STM32F746	OTG HS	x	Color LCD 480x272	Ethernet	Arduino Uno	V2-1
	STM32F7508-DK	STM32F750	OTG HS	x	Color LCD 480x272	Ethernet	Arduino Uno	V2-1
	32F769IDISCOVERY	STM32F769	OTG HS	x	Color LCD 800x480	Ethernet	Arduino Uno	V2-1

life.augmented

More information at:
www.st.com/stm32discovery

Discovery kit portfolio 4/5

	Part number	MCU	USB	Audio	Display	Connectivity	Expansion	STLink
STM32H7	STM32H7B3I-DK	STM32H7B3	OTG	x	Color LCD 480x272	Add-on (optional)	Arduino Uno, STMod+, Mikrobus, Grove	V3
	STM32H735G-DK	STM32H735	OTG	x	Color LCD 480x272	Ethernet	Arduino Uno, Pmod, STMod+, Mikrobus, Grove	V3
	STM32H745I-DISCO	STM32H745	OTG	x	Color LCD 480x272	Ethernet	Arduino Uno, STMod+, Mikrobus, Grove	V3
	STM32H747I-DISCO	STM32H747	OTG HS	x	Color LCD 800x480	Ethernet	Arduino Uno, Pmod, STMod+, Mikrobus, Grove	V3
	STM32H750B-DK	STM32H750	OTG	x	Color LCD 480x272	Ethernet	Arduino Uno, STMod+, Mikrobus, Grove	V3
STM32Wx	STM32WB5MM-DK	STM32WB5MM	OTG	x	OLED 128x64	BLE v5.2, Zigbee, Thread	Arduino Uno, STMod+, Mikrobus, Grove	V2-1

life.augmented

More information at:
www.st.com/stm32discovery

Discovery kit portfolio 5/5

Part number	MCU	Description	Key features	Expansion	STLink
B-L072Z-LRWAN1	STM32L072	All-in-one low-power wireless node	LoRa, Sigfox, WMbus AAA-battery operation	Arduino Uno, ST morpho	V2-1
B-L4S5I-IOT01A	STM32L4S5	All-in-one IoT node with low-power connectivity & multiway sensing	BLE, NFC, Wi-Fi, Sensors (digital microphone, 9-axis navigation, pressure, humidity, temperature, proximity / gesture detection)	Arduino Uno, Pmod	V2-1
B-U585I-IOT02A	STM32U585	All-in-one IoT node with low-power connectivity & multiway sensing	BLE, Wi-Fi, Sensors (digital microphone, 9-axis navigation, pressure, humidity, temperature, proximity/gesture detection)	Arduino Uno, Pmod, STmod+, MikroBus, Grove	V3
B-L462E-CELL1	STM32L462	Worldwide Cellular IoT node LTE catM / NB-IoT	eSIM and MicroSIM, 3-month dataplan included	STmod+, MikroBus, Grove	V2-1

I-CUBE-LRWAN	LoRaWAN-compliant software expansion for STM32Cube
X-CUBE-SFOX	Sigfox-compliant software expansion for STM32Cube

X-CUBE-CLOUD	Cloud connectors as expansion for STM32Cube (Amazon Web Services, Microsoft Azure, IBM Watson)
X-CUBE-CELLULAR	Cellular software framework as expansion for STM32Cube.

life.augmented

More information at:
www.st.com/stm32app-discovery

STM32U5 discovery IoT node…

Multi-link communication, multiway sensing

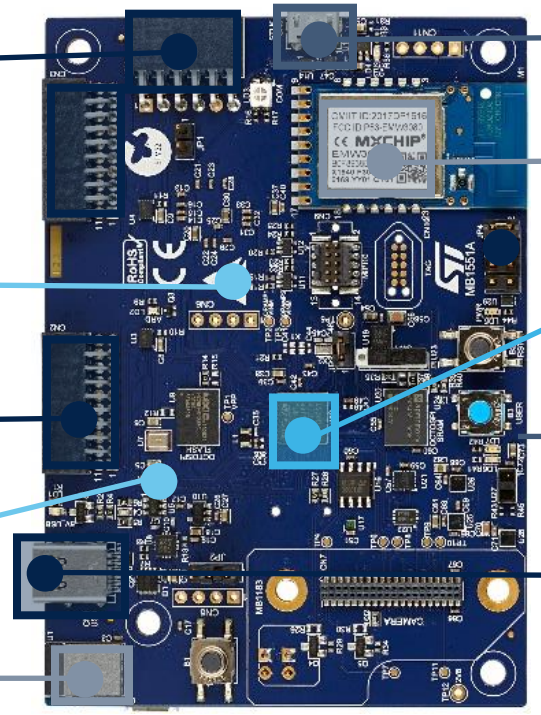
PMOD extension connector

Gyro/Accelero/Magnetometer, Proximity, Pressure, Humidity, Temperature sensors

STMOD+ extension connector

Audio mics

BLE module (WB5MM)



Integrated STLink: drag & drop Flash programming

Wi-Fi module

STM32U585 MCU

Arduino Uno extension connectors

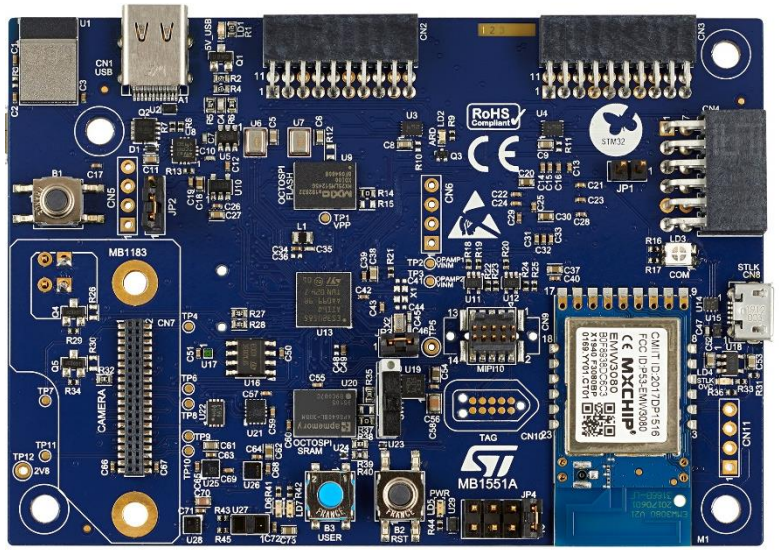
USB Type-C connector

B-U585I-IOT02A

life.augmented

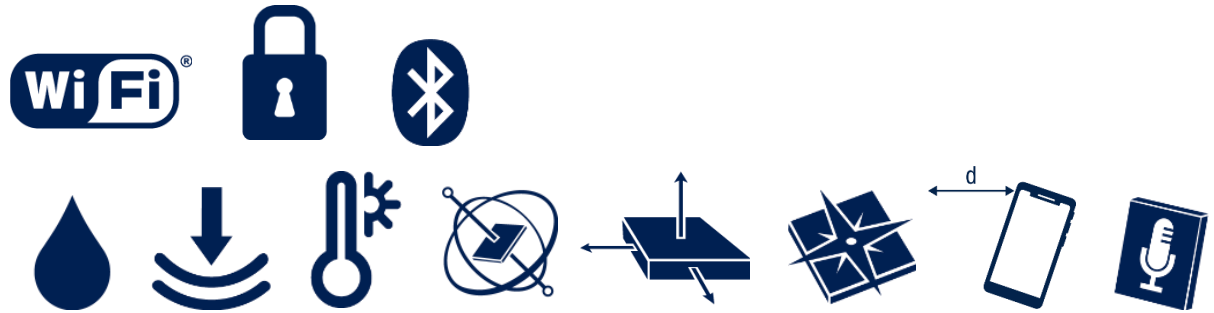
…Delivers user-friendly cloud access

- Direct connection to cloud services
- Low-power communication
- Environmental awareness: humidity, pressure, temp
- Detection hub: motion, proximity, audio
- Direct support of communities



aws

Azure



CLOUD

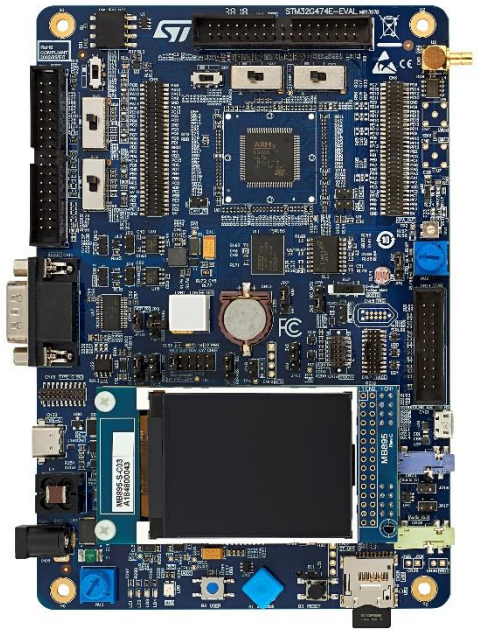
Cloud STM32Cube Expansion Packages

life.augmented

Latest evaluation boards



STM32G081B-EVAL



STM32G474E-EVAL



STM32H757I-EVAL



STM32U575I-EV

Evaluation board portfolio

Mainstream	Ultra-low-power	High-performance

Part number	MCU	Part number	MCU	Part number	MCU
STM32072B-EVAL	STM32F072	STM32L073Z-EVAL	STM32L073	STM3220G-EVAL	STM32F207
STM3210E-EVAL	STM32F103	STM32L476G-EVAL	STM32L476	STM32429I-EVAL	STM32F429
STM32303E-EVAL	STM32F303	STM32L4R9I-EVAL	STM32L4R9	STM32F769I-EVAL	STM32F769
STM32373C-EVAL	STM32F373	STM32L552E-EV	STM32L552	STM32H7B3I-EVAL	STM32H7B3
STM32G081B-EVAL	STM32G081	STM32U575I-EV	STM32U575	STM32H743I-EVAL	STM32H743
STM32G0C1E-EV	STM32G0C1			STM32H757I-EVAL	STM32H757
STM32G474E-EVAL	STM32G474				

More information at:
www.st.com/stm32evaltools

life.augmented

STM32 boards contribute to communities

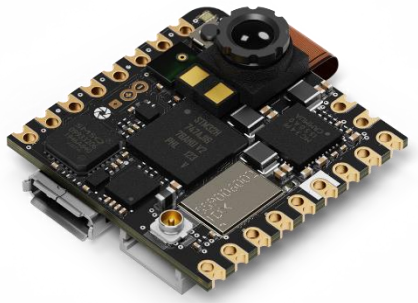
ARDUINO

59
Boards
(full list here)
(libraries)

30
Expansion
Boards
(libraries)



Portenta H7



Nicla Vision

life.augmented

Our technology starts with You



Find out more at www.st.com/stm32

© STMicroelectronics - All rights reserved.
ST logo is a trademark or a registered trademark of STMicroelectronics International NV or its affiliates in the EU and/or other countries.
For additional information about ST trademarks, please refer to www.st.com/trademarks.
All other product or service names are the property of their respective owners.

life.augmented