



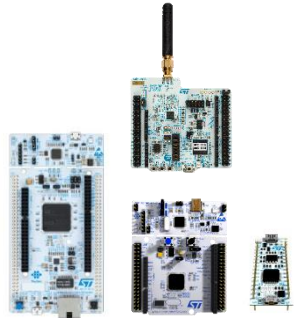
life.augmented



STM32 development boards portfolio

Ecosystem Marketing
Q2'2021

Development tools overview



STM32 Nucleo

Flexible
prototyping

www.st.com/stm32nucleo



Discovery kits

Key feature
prototyping

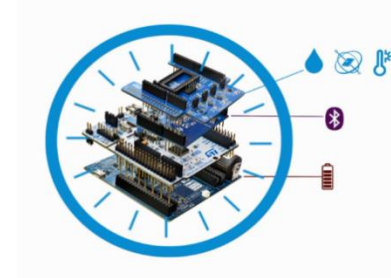
www.st.com/stm32discovery



Evaluation
boards

Full feature
evaluation

www.st.com/stm32evaltools



STM32 Nucleo
expansion

Functionality
add-on

www.st.com/x-nucleo



Third-party
boards

From full
evaluation to
open hardware



Move Actuate



Connect



Power Drive



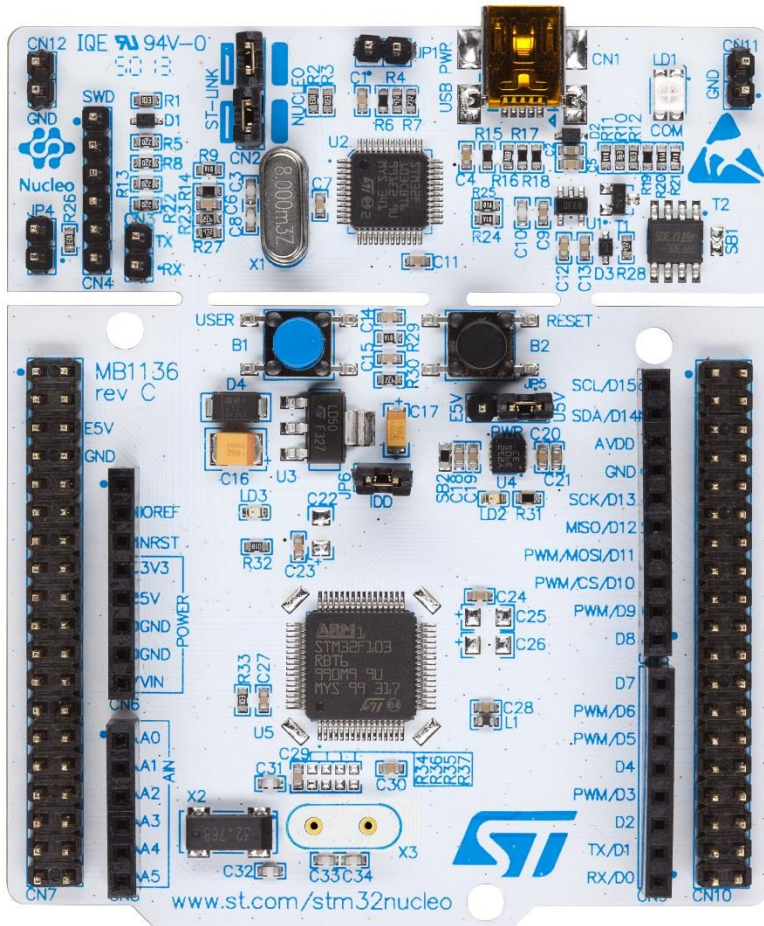
Sense



Translate



STM32 Nucleo key assets



Flexible prototyping

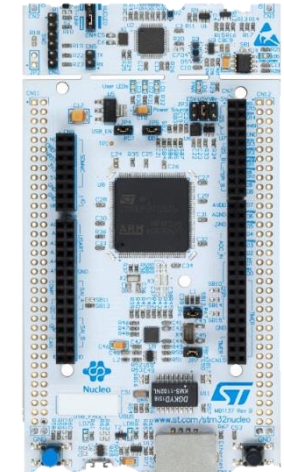
Unlimited expansion capabilities

Simply show the whole STM32 portfolio to the communities

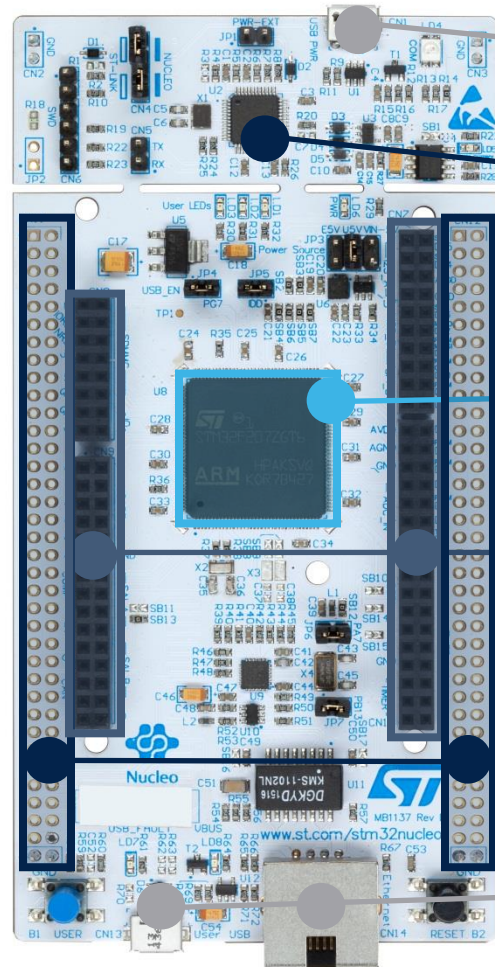


STM32 Nucleo form-factor choices

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



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

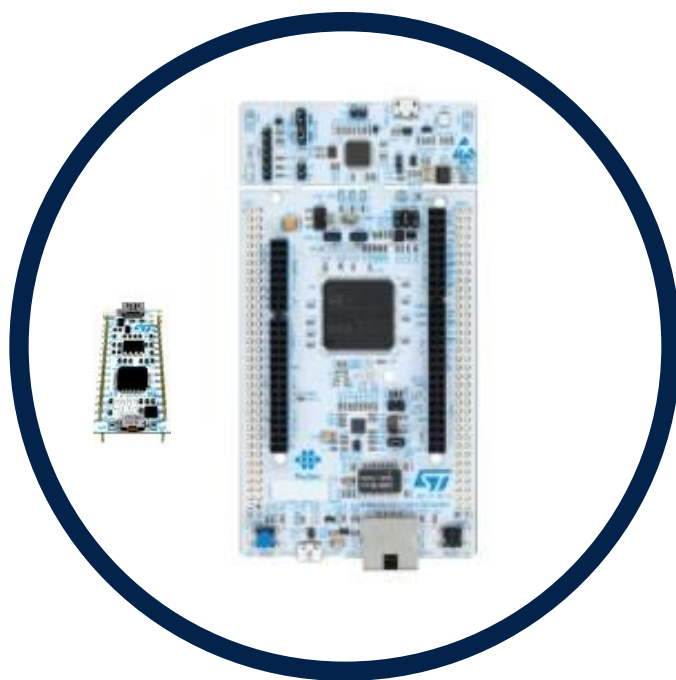
Arduino Uno & ST Zio connectors:
easy access to add-ons

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

Ethernet & USB OTG (optional)

Amazing STM32 Nucleo boards

Stretching boundaries



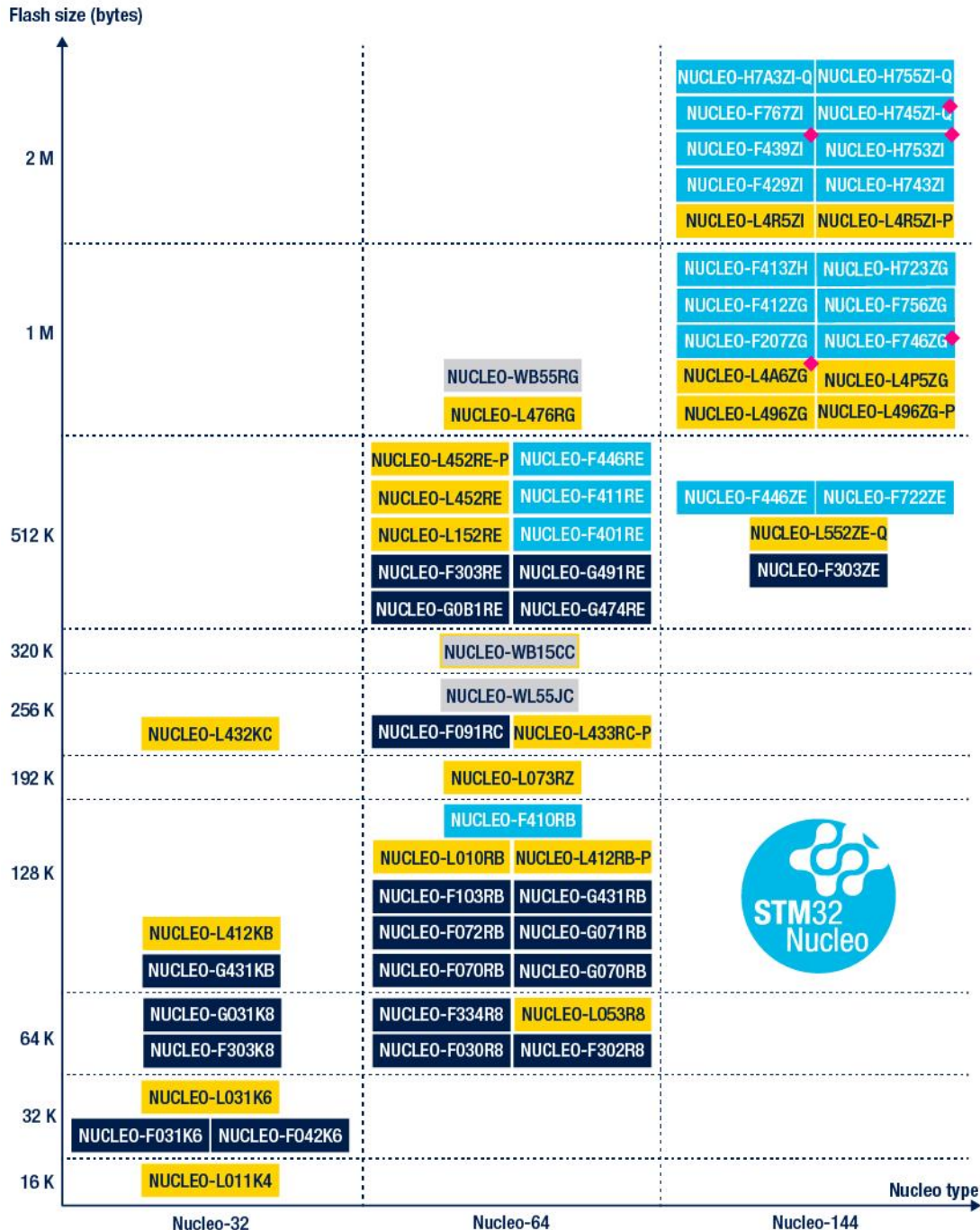
STM32H7 Nucleo-144
STM32L4 Nucleo-32

NUCLEO-H745ZI-Q

High performance
STM32H745 dual-core
CoreMark 3223

NUCLEO-L412KB

Lower power
STM32L412
ULPMark-CP 447
ULPMark-PP 167



STM32 Nucleo portfolio

A broad range of

Performance

Peripherals

Power

Price



www.st.com/stm32nucleo

Legend: ■ Mainstream ■ Ultra-low-power ■ High-performance ■ Wireless

-P Corresponding to External SMPS version -Q Corresponding to Internal SMPS version

◆ HW crypto/Hash version available □ Available in H1 2021



Sense



Power



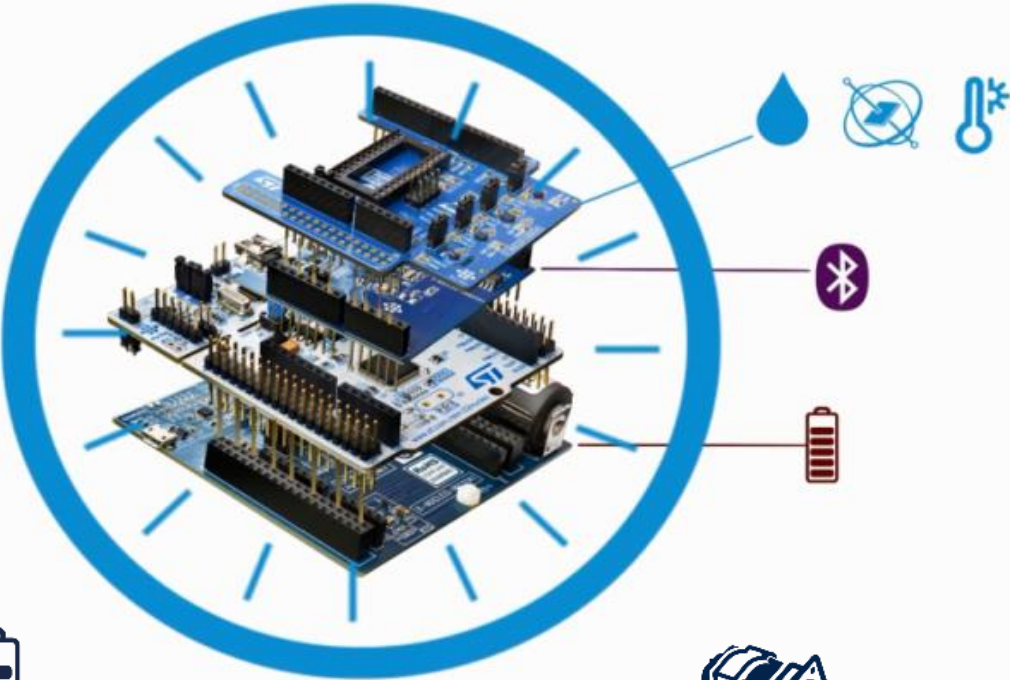
Interact



Connect



Move



Association with shields

Specialized functionality add-on

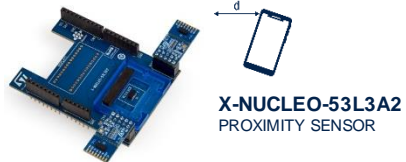
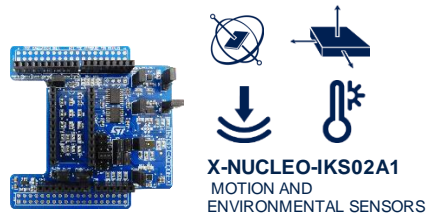
Smooth integration with STM32Cube
software library

Multiple IDEs
(STM32CubeIDE, IAR, Arm®...)

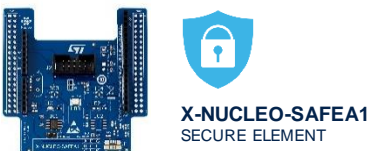


Nucleo expansion boards from ST

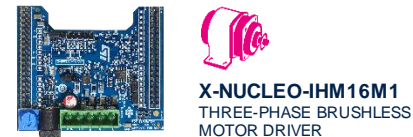
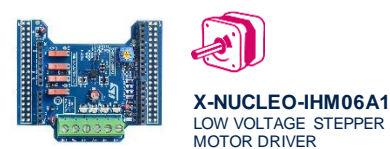
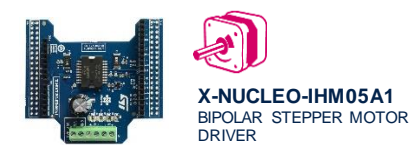
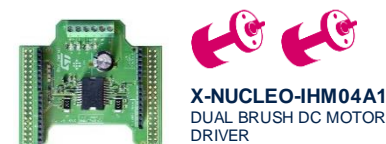
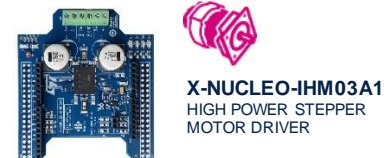
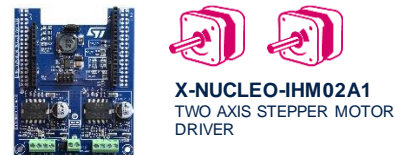
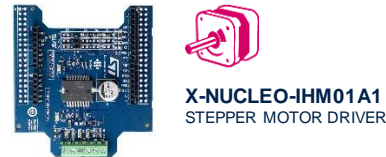
Sensors and analog



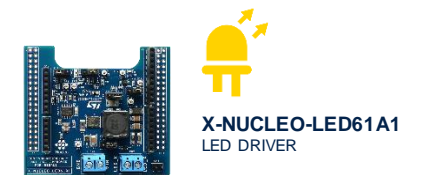
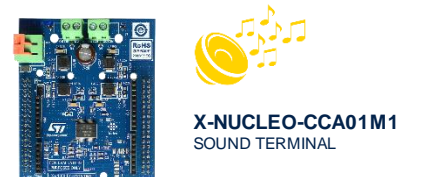
Communication



Motor drive



Translate





STM32 power shield key assets

Accurate power profiling



Ultra-low power consumption measurements

Compatible with all Nucleo form factors (32 / 64 / 144)

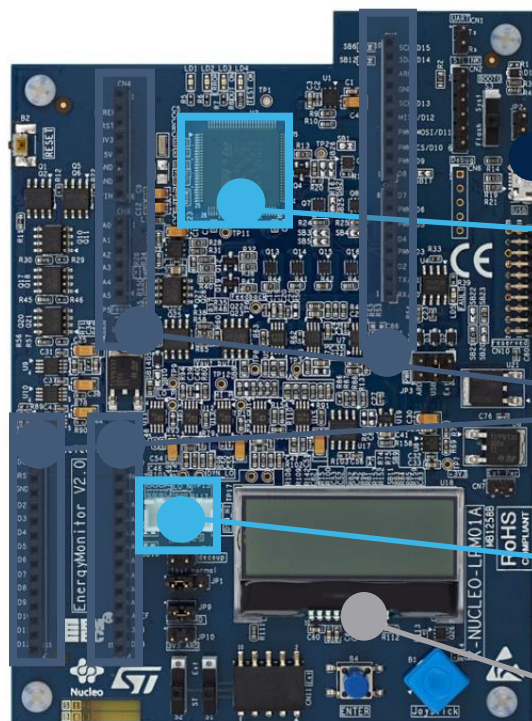
Graphical analysis with STM32CubeMonitor-Power tool

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

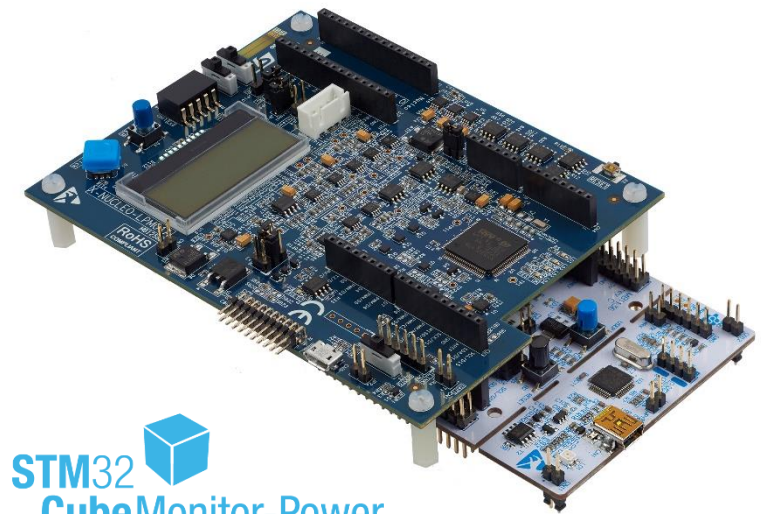
Arduino connectors compatible with
Nucleo-32, 64 & 144 boards

4-wire connector
for any type of target board

Local display:
EEMBC ULPBench score

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 (reference: [STM32CubeMonPwr](#))
- Resale price (RRP) \$70
- Official EEMBC Energy Monitor v2.0:
 - Direct computation of ULPMark scores



STM32
CubeMonitor-Power



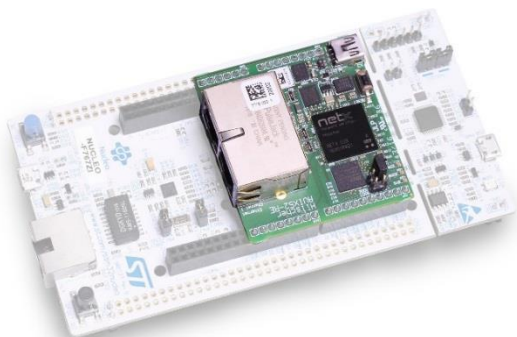
Nucleo expansion boards from 3rd parties

LoRa™



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®

Nucleo boards for wireless communication

NUCLEO-WB55RG
By ST



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

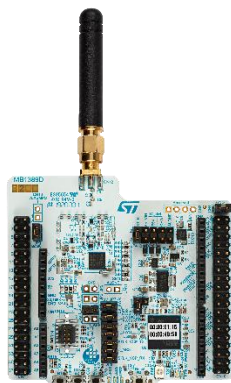


P-NUCLEO-LRWAN2
By ST and USI



P-NUCLEO-LRWAN3
By ST and RisingHF

NUCLEO-WL55JC
By ST



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

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

	Part number	MCU	USB	Audio	Display	Connectivity	Expansion	STLink
STM32F0	STM32F0DISCOVERY	STM32F051					Proprietary	V2
	32F072BDISCOVERY	STM32F072	x				Proprietary	V2
STM32F1	STM32VLDISCOVERY	STM32F100					Proprietary	V2
STM32F3	STM32F3DISCOVERY	STM32F303	x				Proprietary	V2
	32F3348DISCOVERY	STM32F334					Proprietary	V2-1
STM32G0	STM32G0316-DISCO	STM32G031						V2-1
	STM32G071B-DISCO	STM32G071	Type-C		OLED 128x64		Proprietary	V2-1
STM32G4	B-G431B-ESC1	STM32G431						V2-1
	B-G474E-DPOW1	STM32G474	Type-C	x			Proprietary	V2-1

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

Discovery kit portfolio 3/5

STM32F4

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

STM32F7

Discovery kit portfolio 4/5

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

Discovery kit portfolio 5/5



Part number	MCU	Description	Key features	Expansion	STLink
<u>B-L072Z-LRWAN1</u>	STM32L072	All-in-one low-power wireless node	LoRa, Sigfox, WMbus AAA-battery operation	Arduino Uno, ST morpho	V2-1
<u>B-L4S5I-IOT01A</u>	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
<u>B-U585I-IOT02A</u>	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
<u>B-L462E-CELL1</u>	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-CLOUD

Cloud connectors as expansion for STM32Cube (Amazon Web Services, Microsoft Azure, IBM Watson)



X-CUBE-SFOX

Sigfox-compliant software expansion for STM32Cube

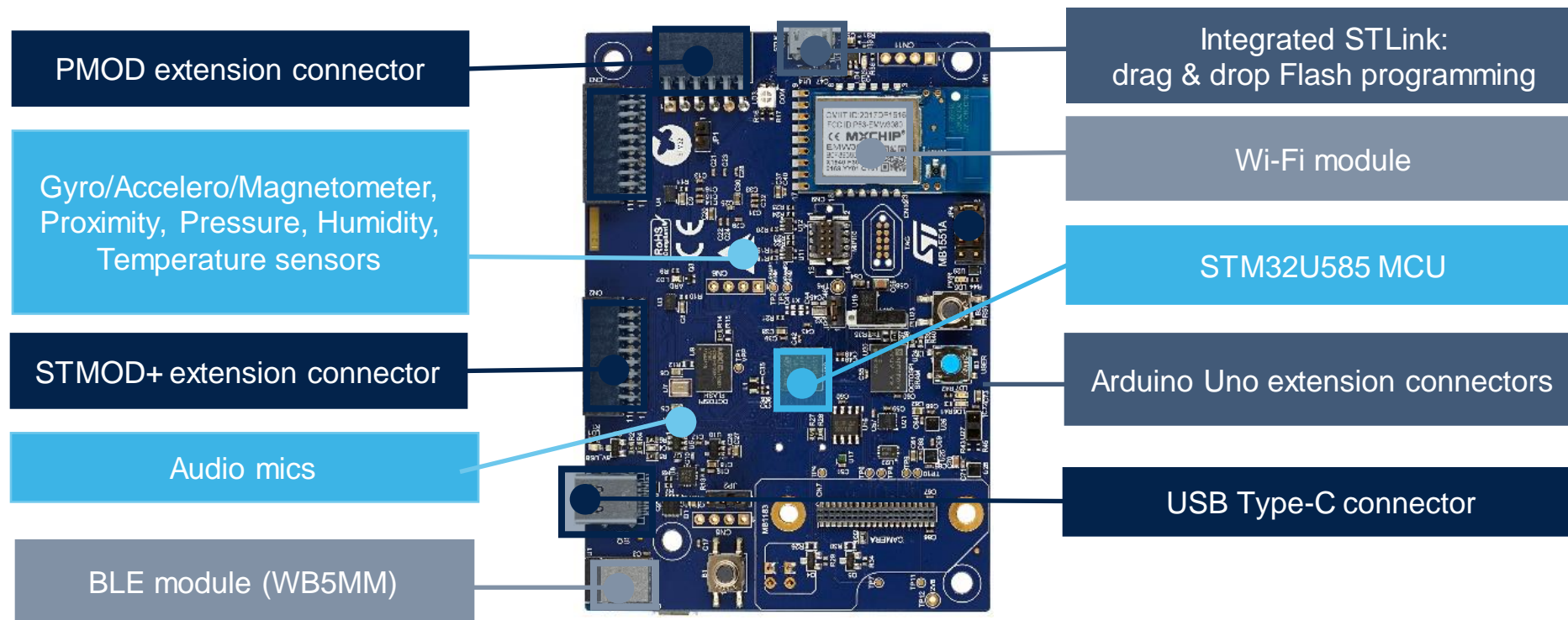
X-CUBE-CELLULAR

Cellular software framework as expansion for STM32Cube.



STM32U5 discovery IoT node...

Multi-link communication, multiway sensing



B-U585I-IOT02A

...Delivers user-friendly cloud access

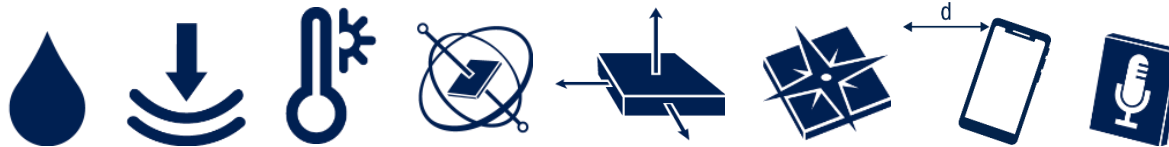
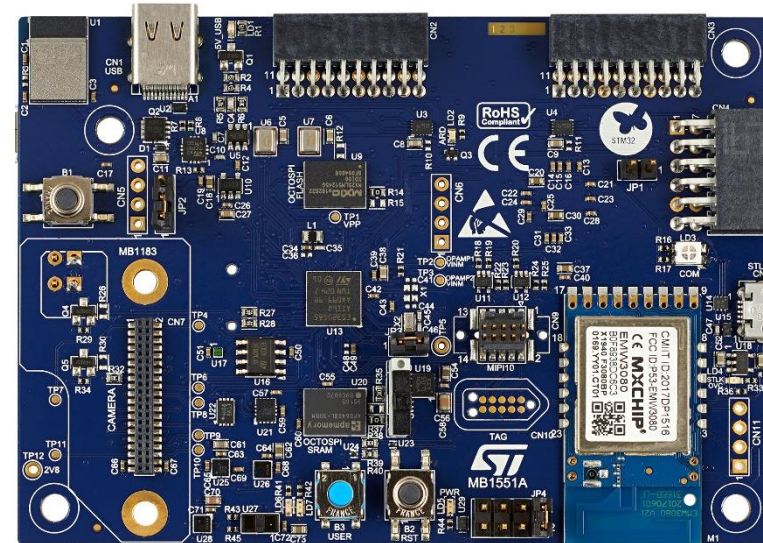
Direct connection to cloud services

Low-power communication

Environmental awareness: humidity, pressure, temp

Detection hub: motion, proximity, audio

Direct support of communities

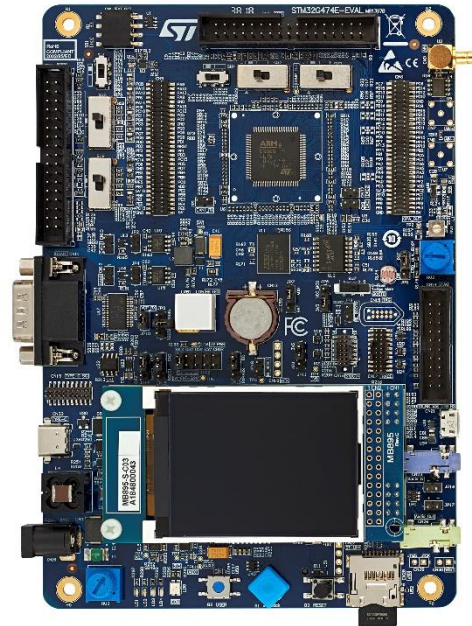


Cloud STM32Cube
Expansion Packages

Latest evaluation boards



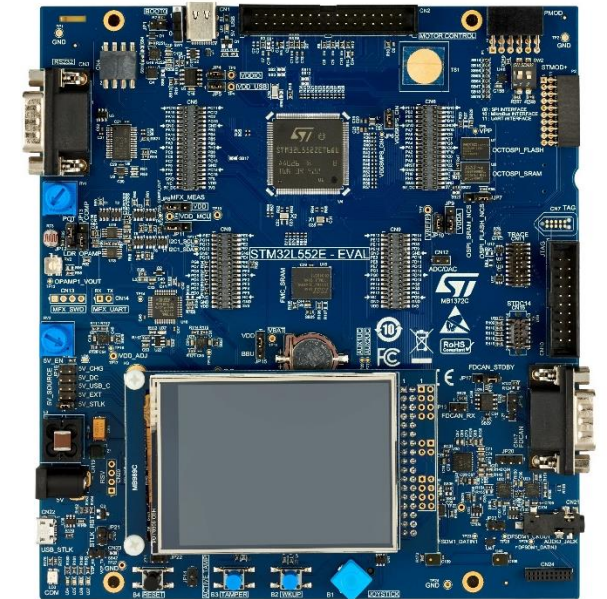
STM32G081B-EVAL



STM32G474E-EVAL



STM32H757I-EVAL



STM32L552E-EV

Evaluation board portfolio

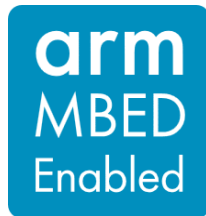
Mainstream

Ultra-low-power

High-performance

Part number	MCU	Part number	MCU	Part number	MCU
<u>STM32072B-EVAL</u>	STM32F072	<u>STM32L073Z-EVAL</u>	STM32L073	<u>STM3220G-EVAL</u>	STM32F207
<u>STM3210E-EVAL</u>	STM32F103	<u>STM32L476G-EVAL</u>	STM32L476	<u>STM3240G-EVAL</u>	STM32F407
<u>STM32373C-EVAL</u>	STM32F373	<u>STM32L4R9I-EVAL</u>	STM32L4R9	<u>STM32429I-EVAL</u>	STM32F429
<u>STM32G0C1E-EV</u>	STM32G0C1	<u>STM32L552E-EV</u>	STM32L552	<u>STM32756G-EVAL</u>	STM32F756
<u>STM32G474E-EVAL</u>	STM32G474			<u>STM32F769I-EVAL</u>	STM32F769
				<u>STM32H7B3I-EVAL</u>	STM32H7B3
				<u>STM32H743I-EVAL</u>	STM32H743
				<u>STM32H757I-EVAL</u>	STM32H757

STM32 boards contribute to communities



52

Boards

[\(full list here\)](#)

30

Expansion
Boards

[\(full list here\)](#)



55

Boards

[\(full list here\)](#)
[\(libraries\)](#)

10

Expansion
Boards

Our technology starts with You



Find out more at www.st.com/stm32

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