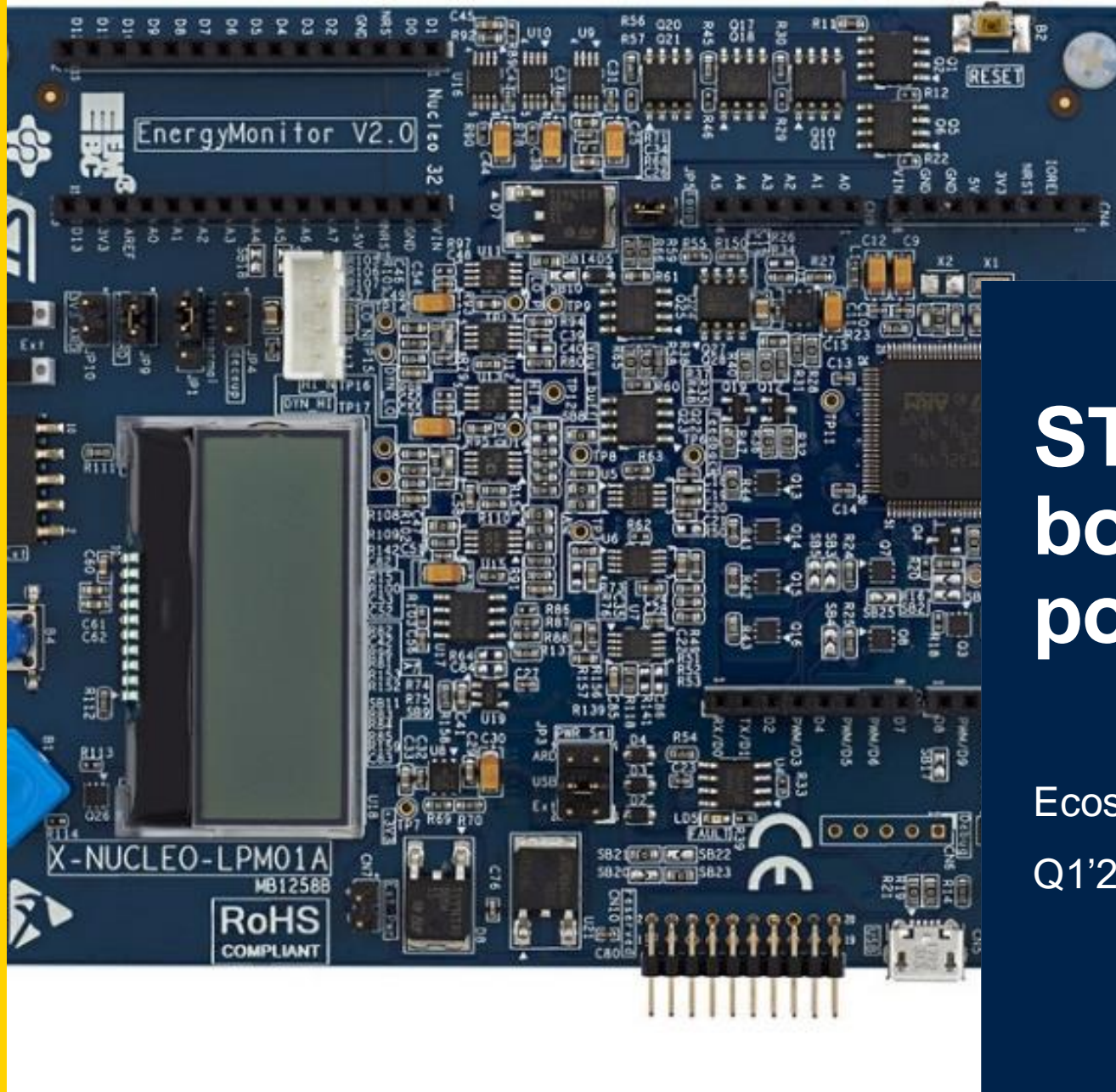




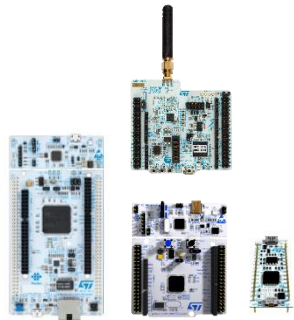
life.augmented



STM32 development boards portfolio

Ecosystem Marketing
Q1'2022

Development tools overview



STM32 Nucleo

Flexible prototyping

www.st.com/stm32nucleo



Discovery kits

Key feature prototyping

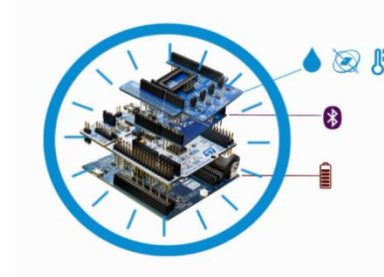
www.st.com/stm32discovery



Evaluation boards

Full feature evaluation

www.st.com/stm32evaltools



STM32 Nucleo expansion

Functionality add-on

www.st.com/x-nucleo



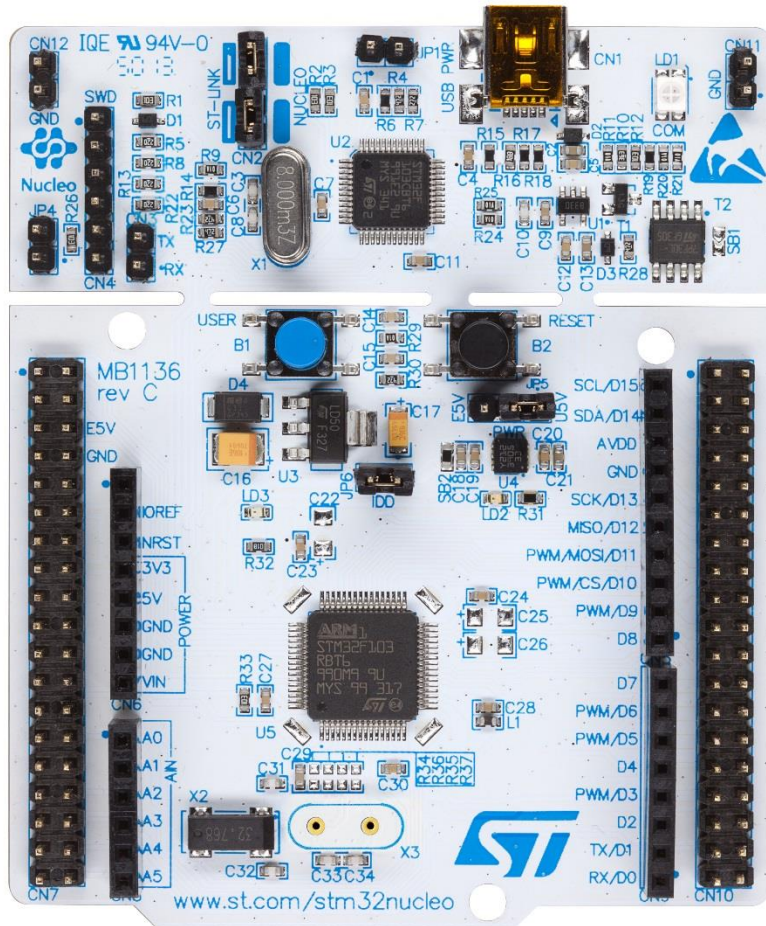
Third-party boards

From full evaluation to open hardware





STM32 Nucleo key assets



Flexible prototyping


Unlimited expansion capabilities

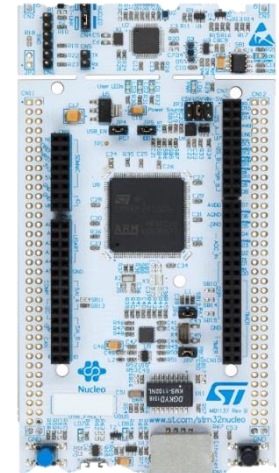
Simply show the whole STM32 portfolio to the communities





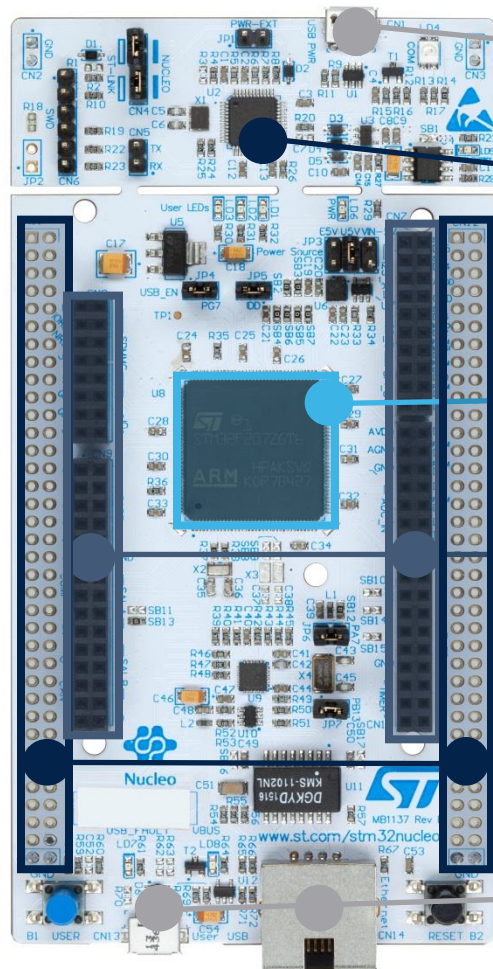
STM32 Nucleo form-factor choices

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

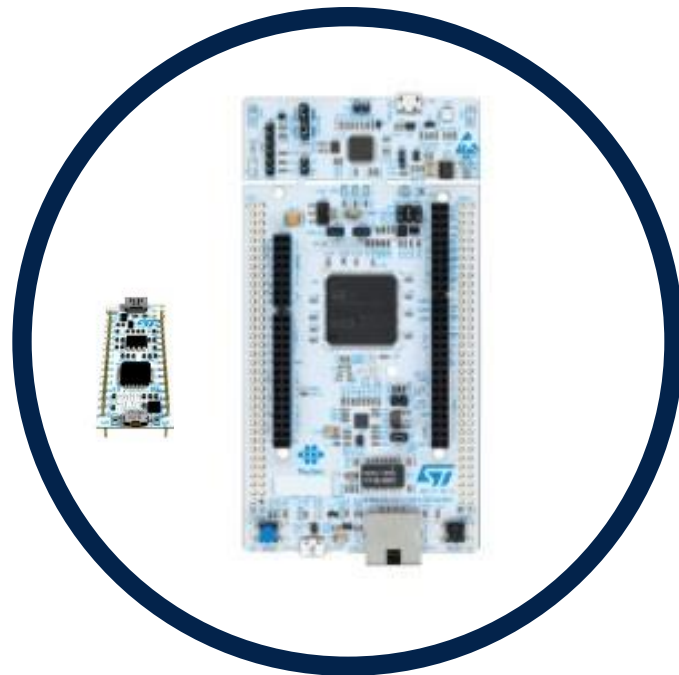
ST morpho extension pins:
direct access to all MCU I/Os

Ethernet & USB OTG (optional)



Amazing STM32 Nucleo boards

Stretching boundaries



STM32H7 Nucleo-144
STM32L4 Nucleo-32

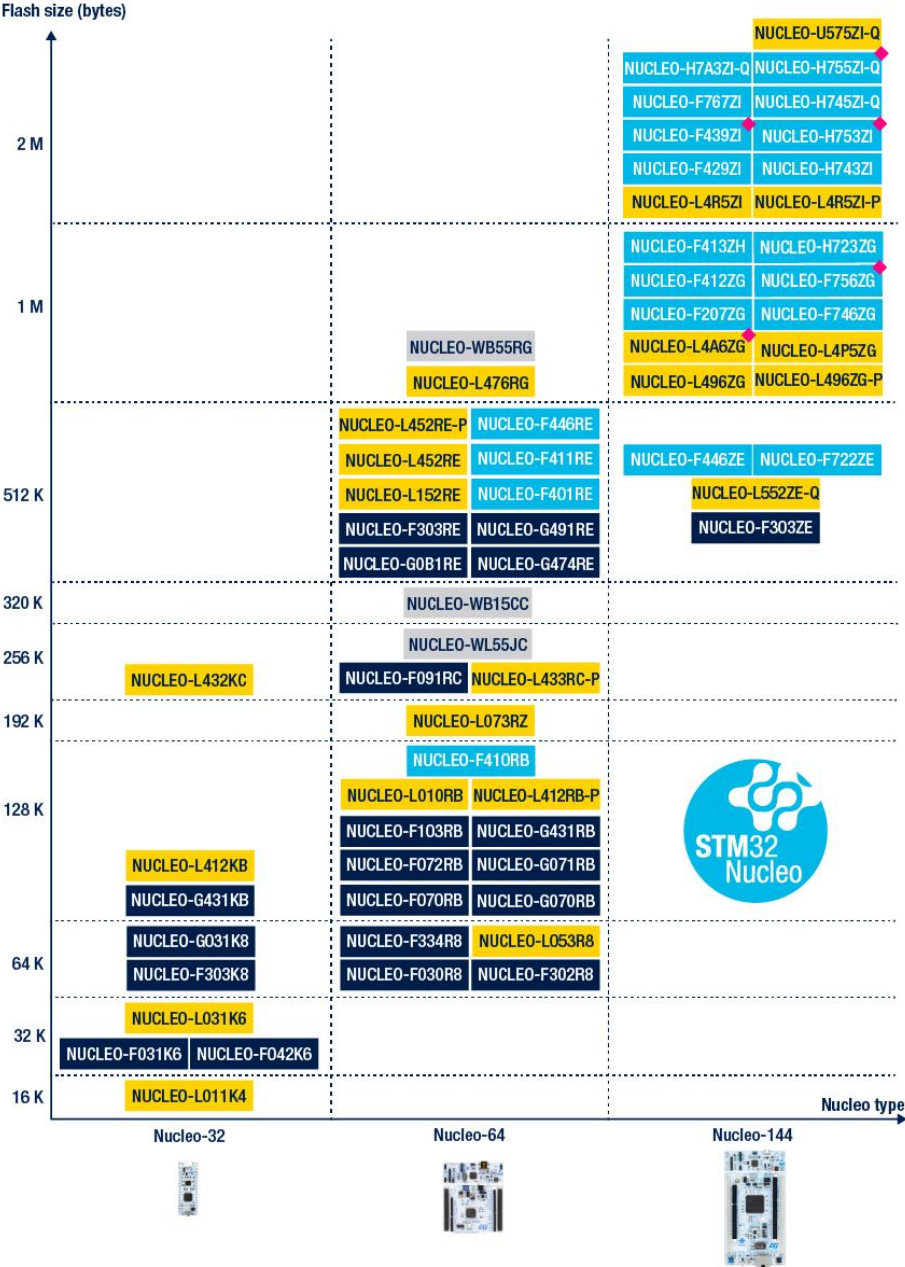
NUCLEO-H745ZI-Q

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

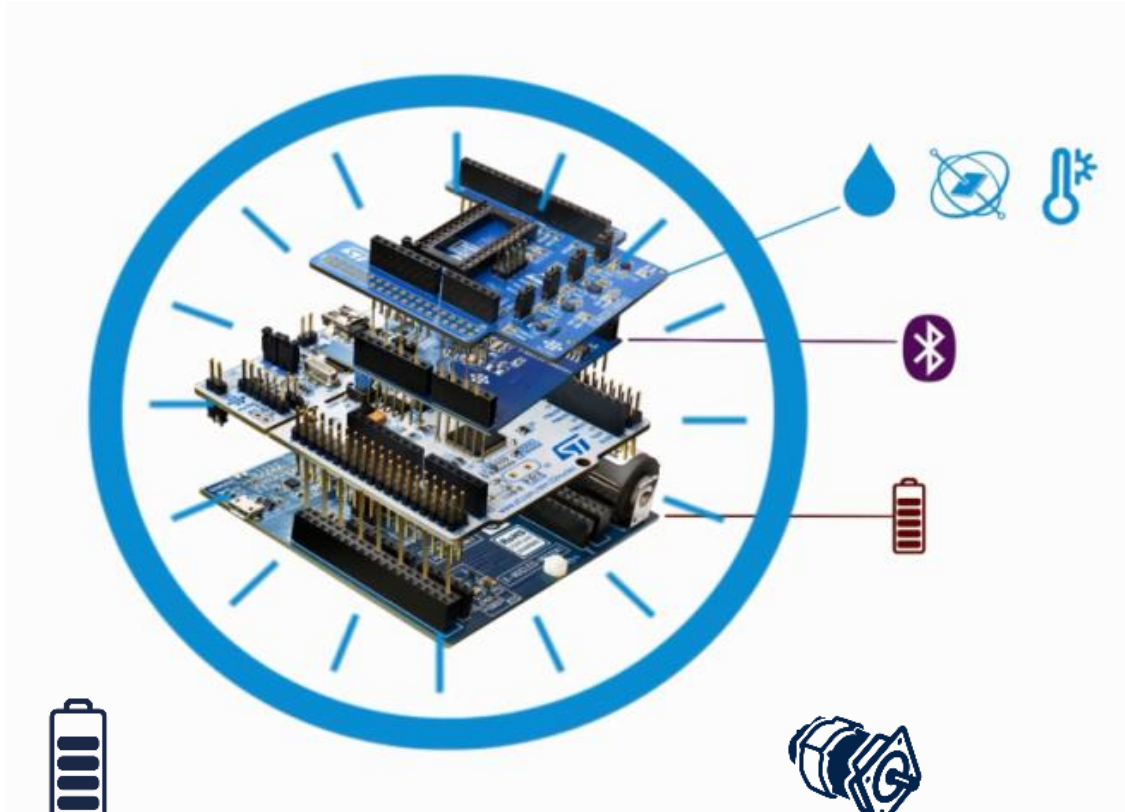
Price



www.st.com/stm32nucleo



Association with shields



Sense



Power



Interact



Connect



Move

Specialized functionality add-on

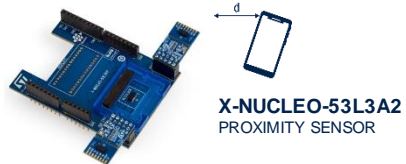
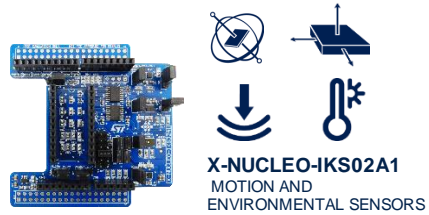
Smooth integration with STM32Cube software library

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

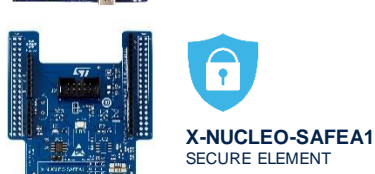
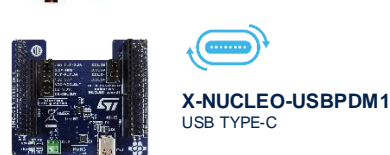
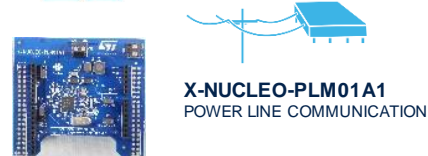


Nucleo expansion boards from ST

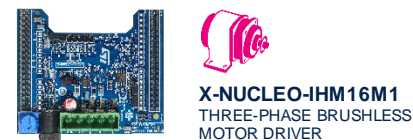
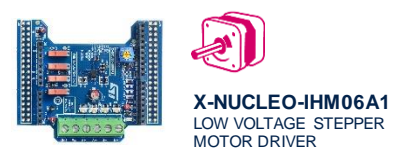
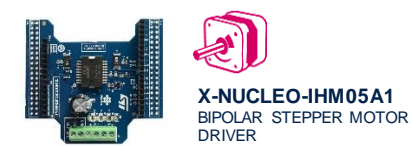
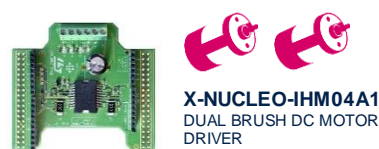
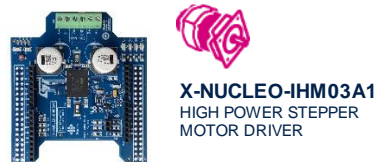
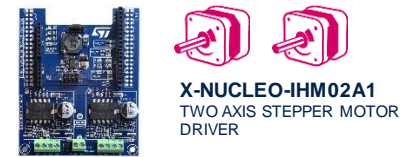
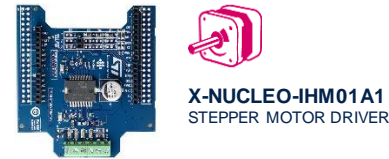
Sensors and analog



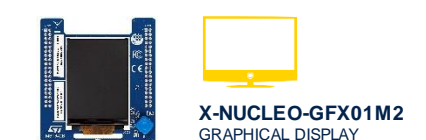
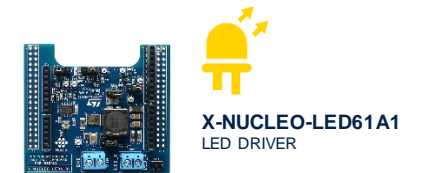
Communication



Motor drive



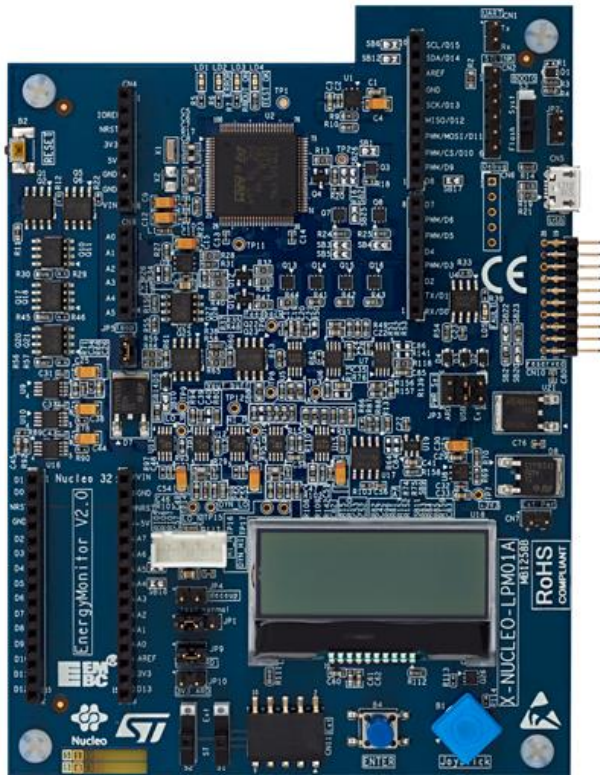
Translate





STM32 power shield key assets

Accurate power profiling



Ultra-low power consumption measurements

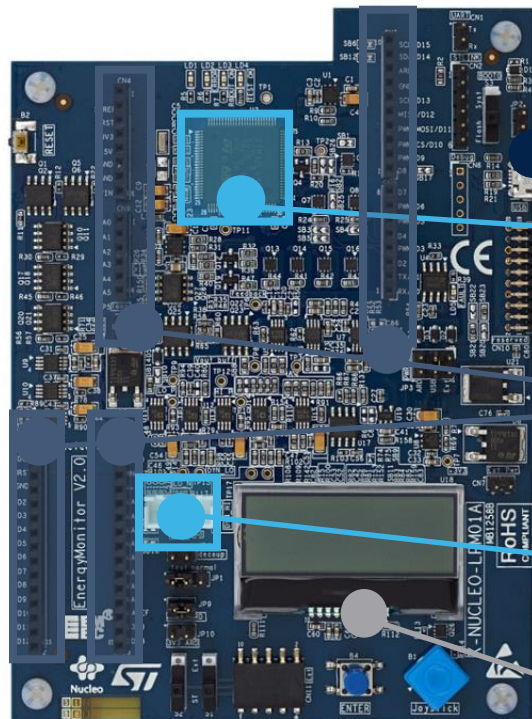
Compatible with all Nucleo form factors (32 / 64 / 144)

Graphical analysis with STM32CubeMonitor-Power tool

Custom test sessions with scripting

Reference tool for EEMBC ULPMark benchmark

STM32 Power Shield anatomy



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

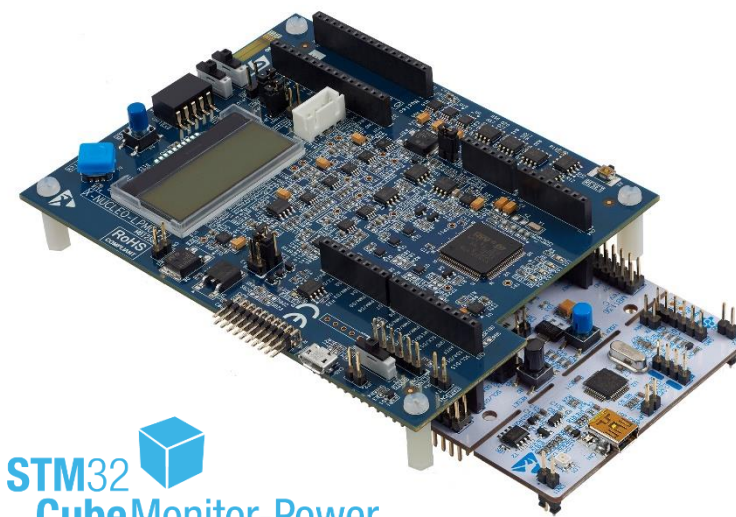
Local display:
EEMBC ULPBench score



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



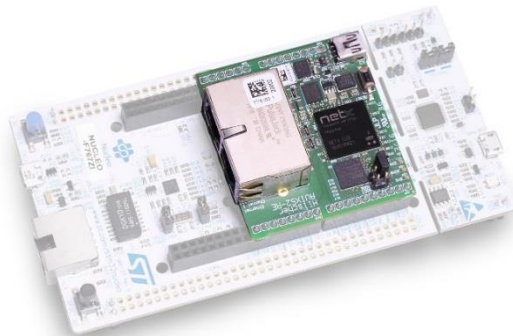
Nucleo expansion boards from 3rd parties

LoRa™



I-NUCLEO-LRWAN1
By USI®

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



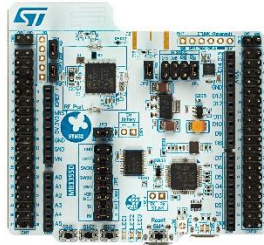
I-NUCLEO-NETX
By Hilscher

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



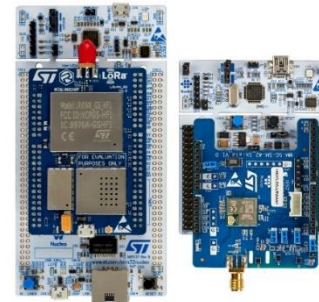
Nucleo boards for wireless communication

NUCLEO-WB55RG
By ST



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

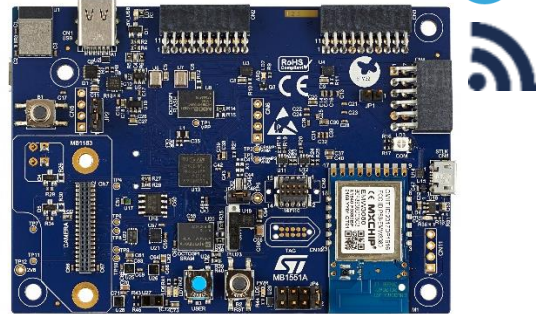


Long Range wireless node
Frequency range 150-960 MHz
LoRa, (G)FSK, (G)MSK, BPSK modulations
LoRaWAN, Sigfox-compliant protocol stack

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

STM32F7

Part number	MCU	USB	Audio	Display	Connectivity	Expansion	STLink
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
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

Discovery kit portfolio 4/5

Part number	MCU	USB	Audio	Display	Connectivity	Expansion	STLink
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
STM32WB5MM-DK	STM32WB5MM	OTG	x	OLED 128x64	BLE v5.2, Zigbee, Thread	Arduino Uno, STMod+, Mikrobus, Grove	V2-1

STM32H7

STM32Wx



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-L4S5-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-U585-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-SFOX Sigfox-compliant software expansion for STM32Cube



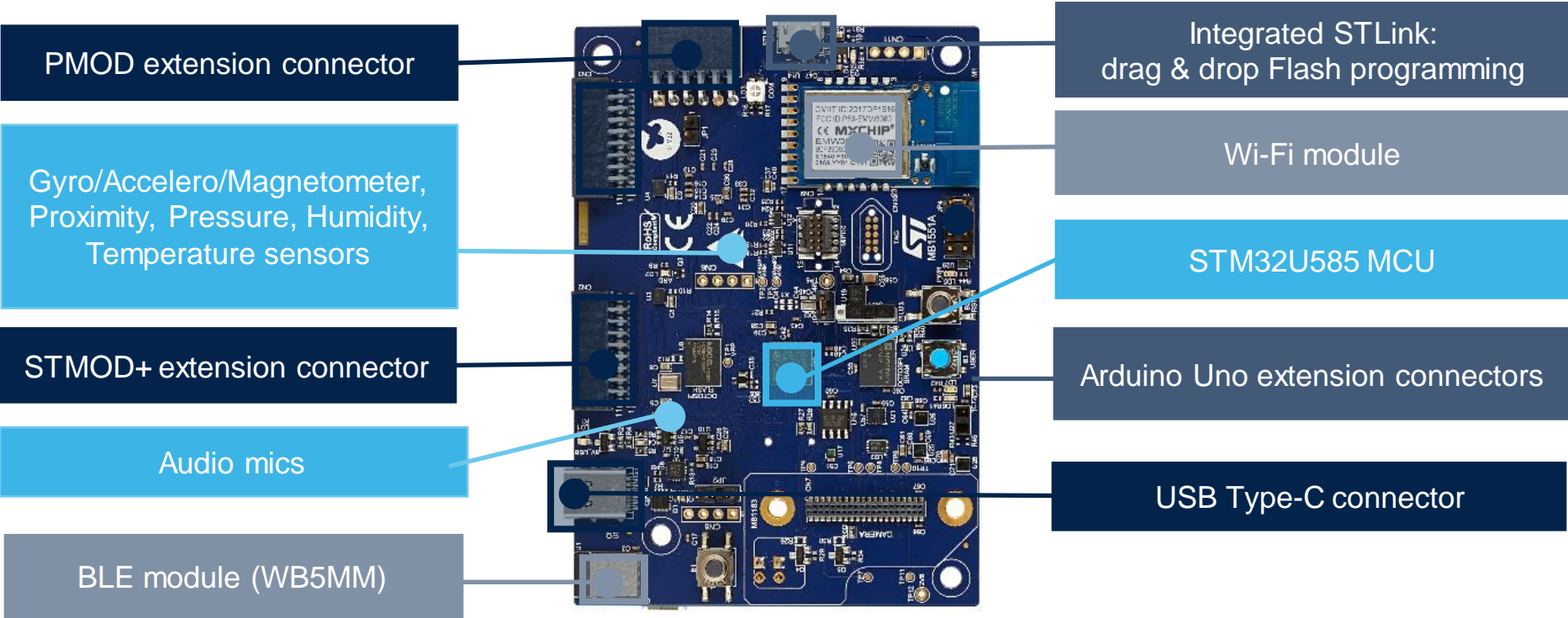
X-CUBE-CLOUD Cloud connectors as expansion for STM32Cube (Amazon Web Services, Microsoft Azure, IBM Watson)

X-CUBE-CELLULAR Cellular software framework as expansion for STM32Cube.



STM32U5 discovery IoT node...

Multi-link communication, multiway sensing



B-U585I-IOT02A

...Delivers user-friendly cloud access

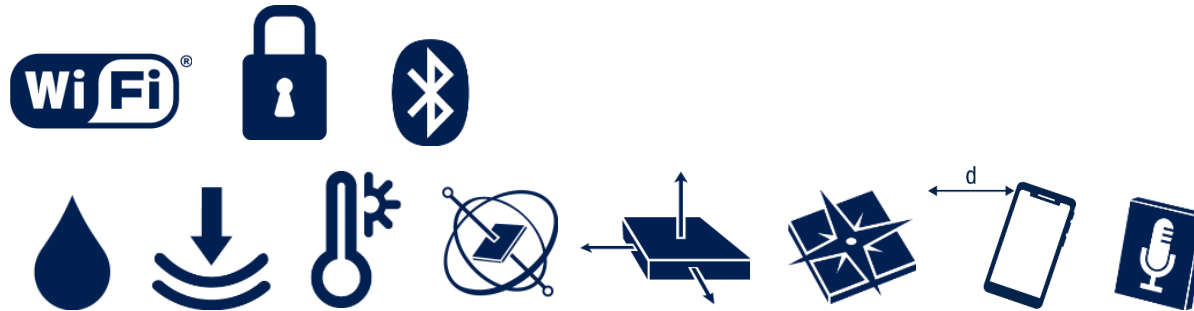
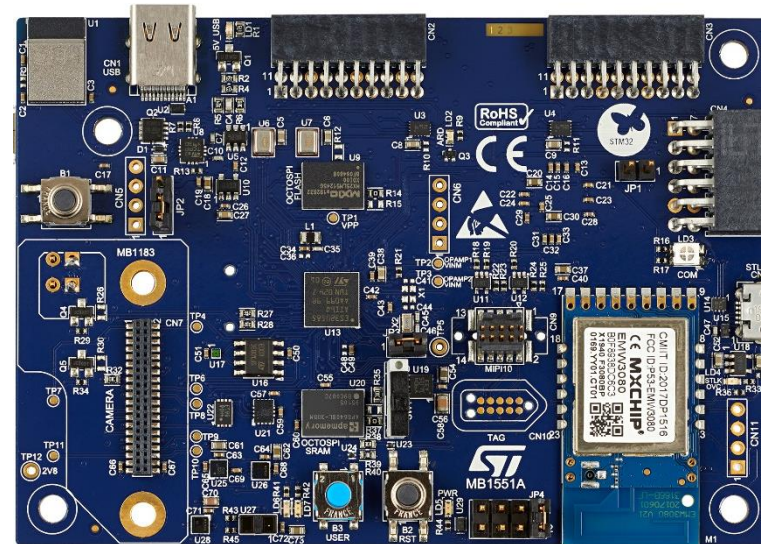
Direct connection to cloud services

Low-power communication

Environmental awareness: humidity, pressure, temp

Detection hub: motion, proximity, audio

Direct support of communities

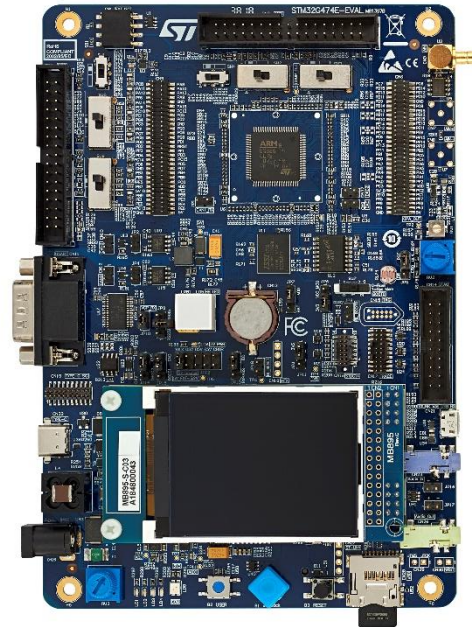


Cloud STM32Cube
Expansion Packages

Latest evaluation boards



STM32G081B-EVAL



STM32G474E-EVAL



STM32H757I-EVAL



STM32U575I-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>STM32429I-EVAL</u>	STM32F429
<u>STM32303E-EVAL</u>	STM32F303	<u>STM32L4R9I-EVAL</u>	STM32L4R9	<u>STM32F769I-EVAL</u>	STM32F769
<u>STM32373C-EVAL</u>	STM32F373	<u>STM32L552E-EV</u>	STM32L552	<u>STM32H7B3I-EVAL</u>	STM32H7B3
<u>STM32G081B-EVAL</u>	STM32G081	<u>STM32U575I-EV</u>	STM32U575	<u>STM32H743I-EVAL</u>	STM32H743
<u>STM32G0C1E-EV</u>	STM32G0C1			<u>STM32H757I-EVAL</u>	STM32H757
<u>STM32G474E-EVAL</u>	STM32G474				



STM32 boards contribute to communities

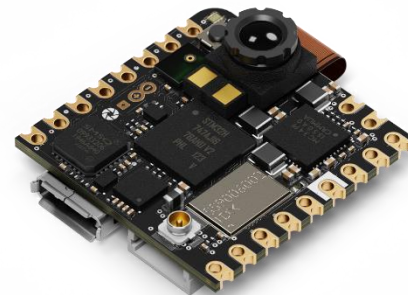


59
Boards
([full list here](#))
([libraries](#))

30
Expansion
Boards
([libraries](#))



Portenta H7



Nicla Vision

Our technology starts with You



Find out more at www.st.com/stm32

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