STM32 Development Boards Portfolio

Ecosystem Marketing

Q1'2018

life.augmented
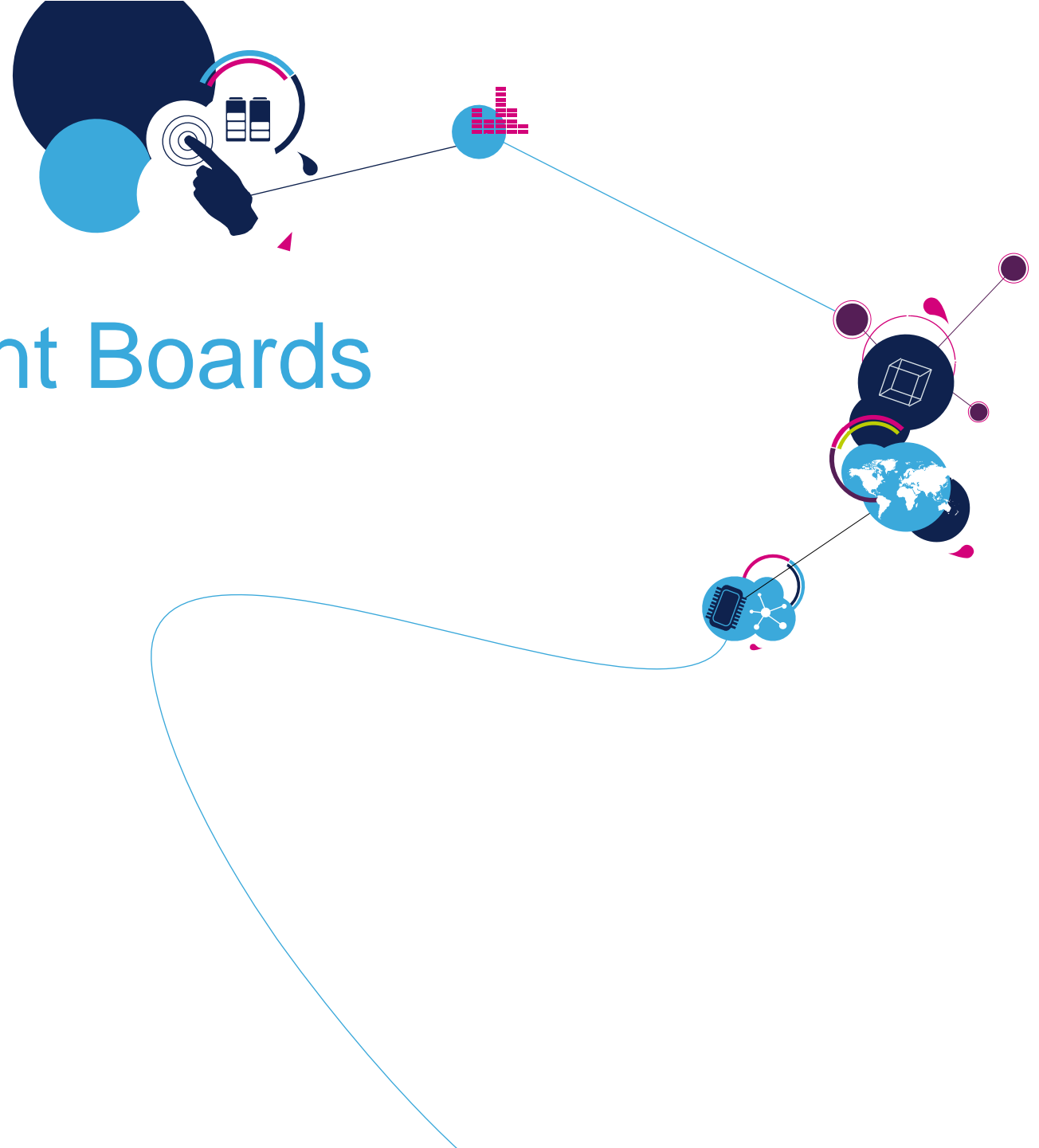
Development tools overview

STM32 Nucleo	Discovery kits	Evaluation boards	STM32 Nucleo expansion	Third-party boards
Flexible prototyping	Key feature prototyping	Full feature evaluation	Functionality add-on	From full evaluation to open hardware
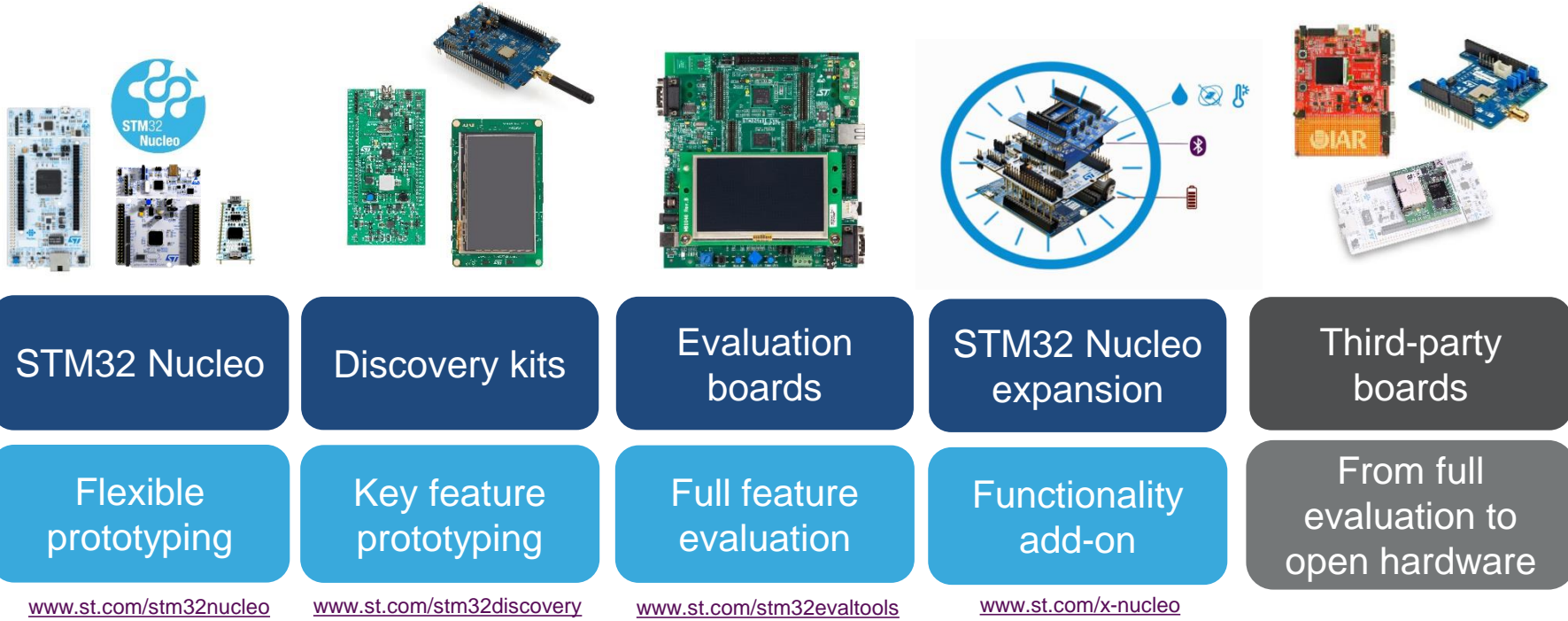
www.st.com/stm32nucleo   www.st.com/stm32discovery   www.st.com/stm32evaltools   www.st.com/x-nucleo

STM32 **F2**   STM32 **F4**   STM32 **F7**   STM32 **H7**

STM32 **F0**   STM32 **F1**   STM32 **F3**

STM32 **L4**   STM32 **L0**   STM32 **L1**   STM32 **L4+**

Move Actuate   Connect

Power Drive   Sense

Translate

life.augmented
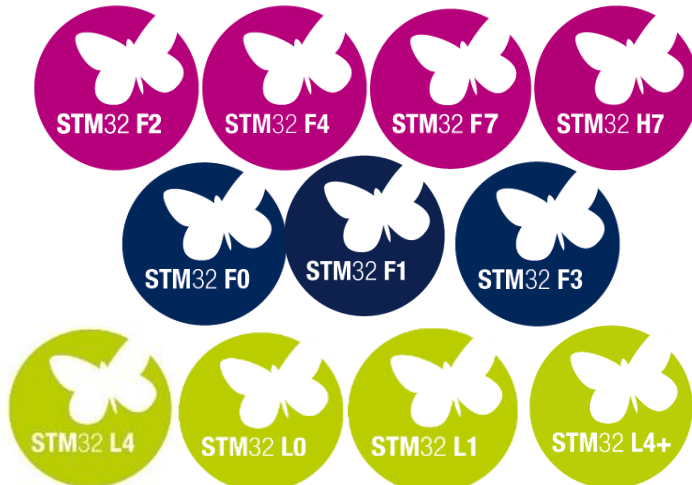
STM32 Nucleo key assets
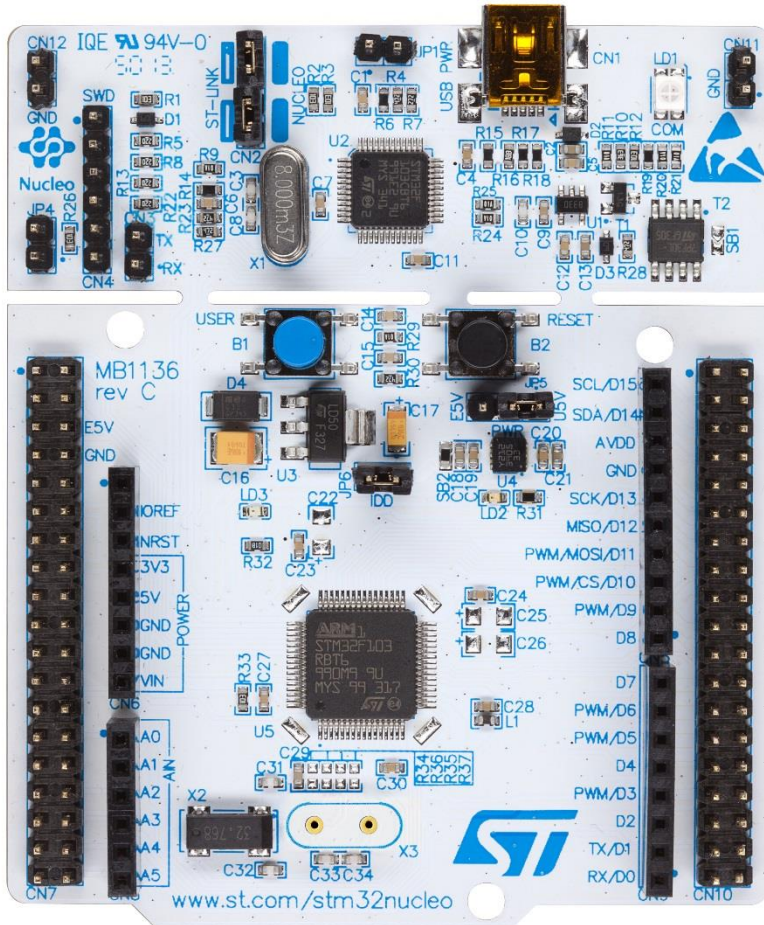
Flexible prototyping

Unlimited expansion capabilities

Simply show the whole STM32 portfolio to the communities

ARDUINO

arm MBED Enabled

STM32 Nucleo

life.augmented

STM32 Nucleo form choices

STM32 F2 STM32 F4 STM32 F7 STM32 H7

(on selected MCU configurations)
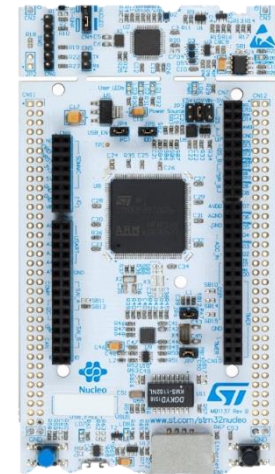
Ethernet — ***

USB — ***

ST Zio
(Uno extended) — ***
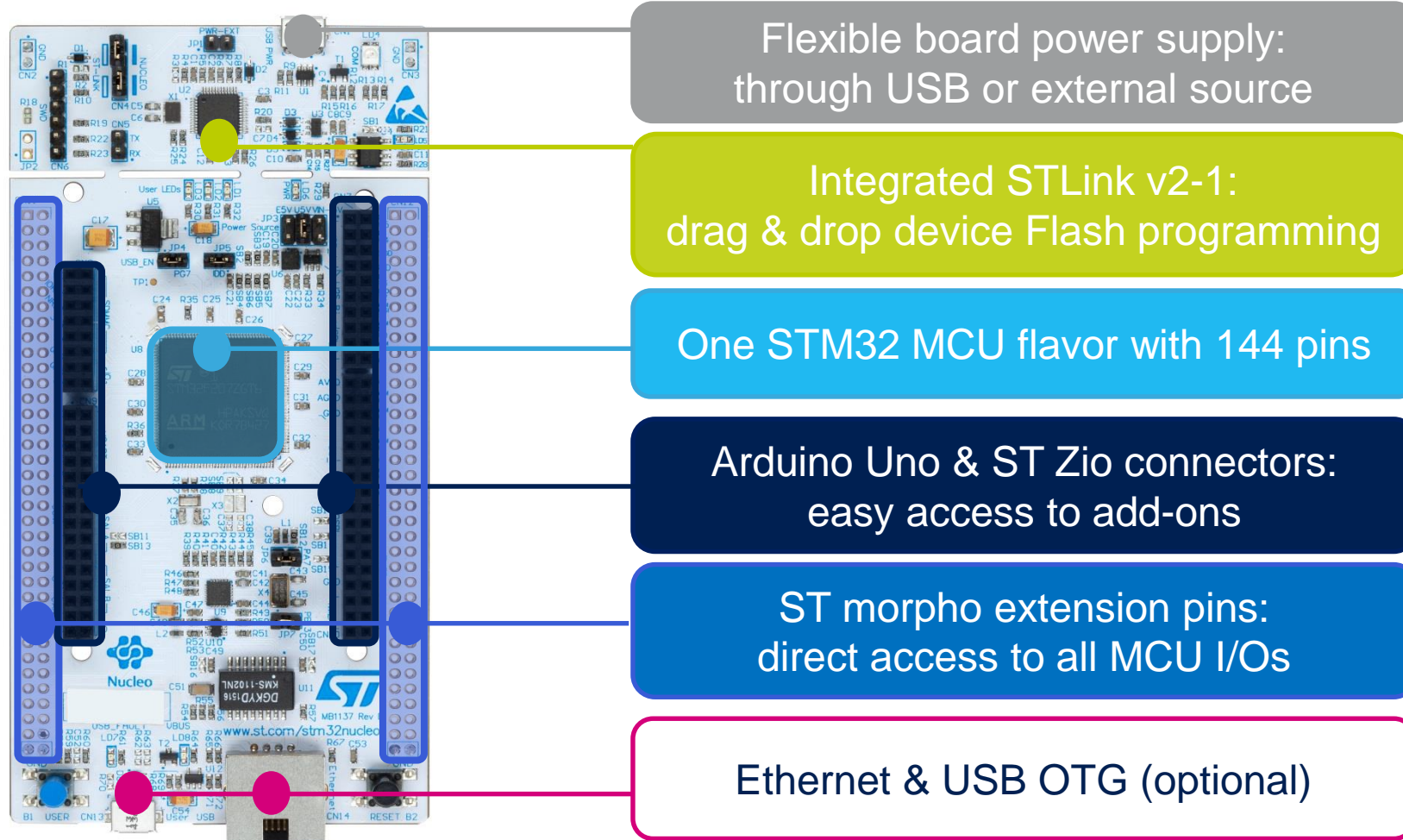
Arduino Uno
ST morpho — ** / **

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 v2-1:
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)

life.augmented

Amazing STM32 Nucleo boards

Stretching boundaries

STM32H7 Nucleo without SMPS

NUCLEO-H743ZI

High-performance
STM32H743 MCU
CoreMark 2020
Price $23

NUCLEO-L496ZG-P

STM32 L4

STM32 H7
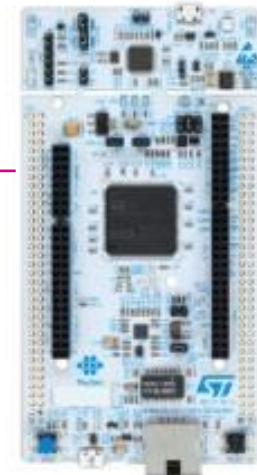
STM32L4 Nucleo with SMPS

Ultra-lower-power
STM32L496 MCU
with external SMPS
ULPMark-CP 217
Price $20

life.augmented

Nucleo type

Nucleo-144

L496ZG ●	L4R5ZI ●
F746ZG	H753ZI ●
F722ZE	F413ZH	H743ZI ●
F446ZE	F412ZG	F767ZI ●
F303ZE	F207ZG ●	F429ZI ●

| L433RC-P | L452RE ● |
| | F446RE |

Nucleo-64

F334R8	F103RB	F411RE
F302R8	F072RB	F401RE
F030R8	F070RB	F091RC	F303RE
L053R8	L073RZ	L152RE	L476RG

Nucleo-32

| F042K6 |
| F031K6 | F303K8 |
| L011K4 | L031K6 | L432KC |

Flash memory size (bytes)

16 K · 32 K · 64 K · 128 K · 192 K · 256 K · 512 K · 1 M · 2 M
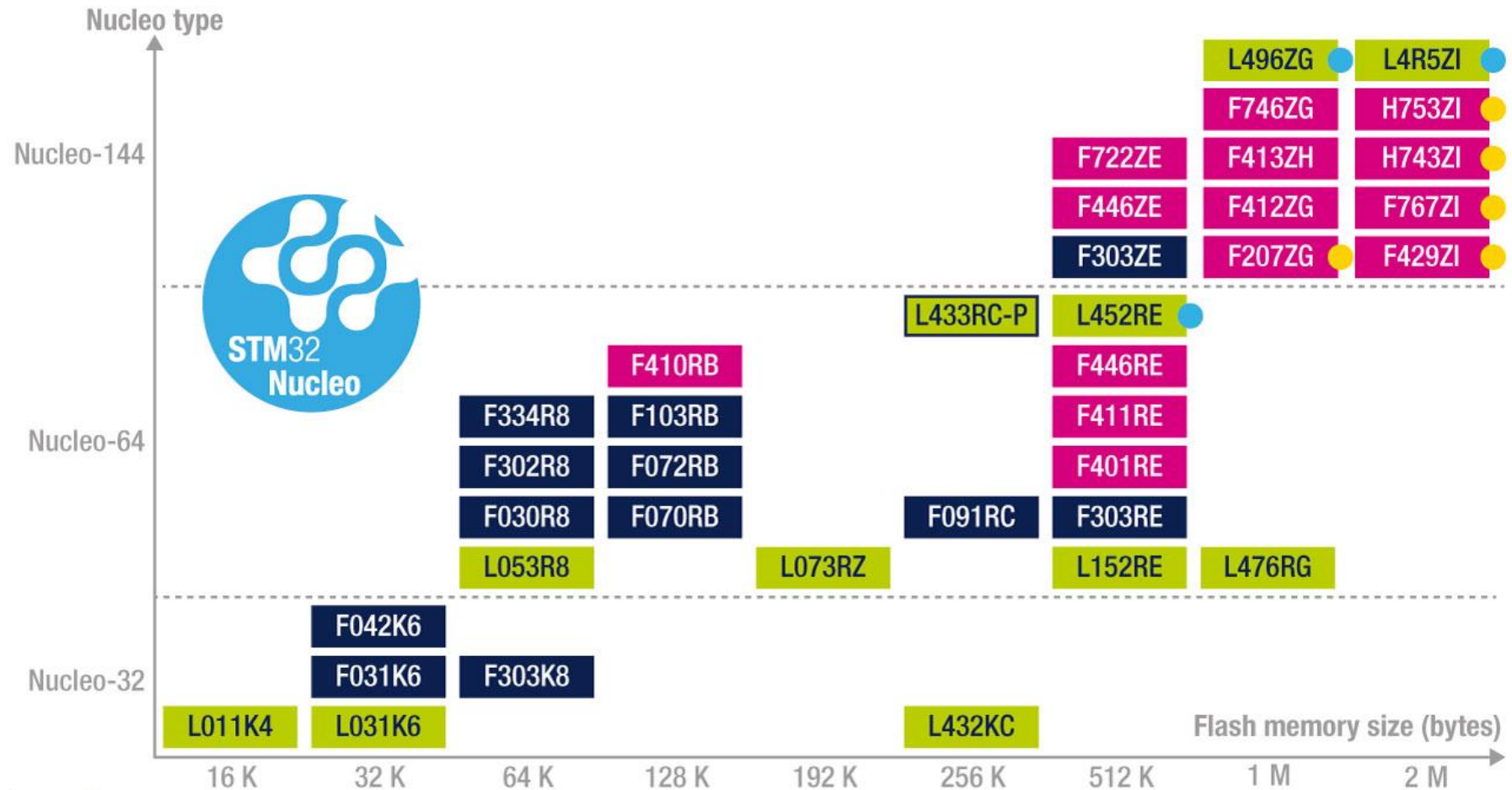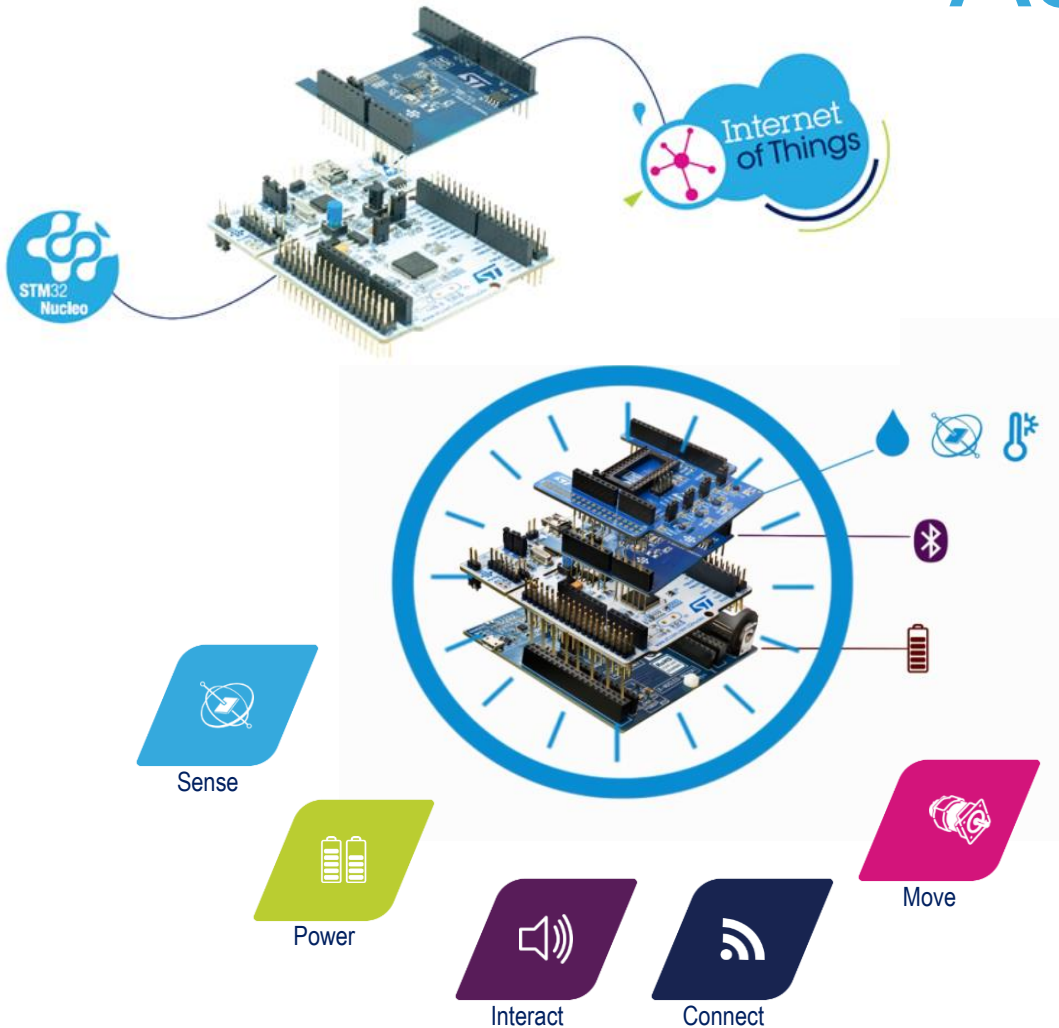
Legend:
■ Mainstream ■ Ultra-low-power ■ High-performance ● Ethernet 10/100 Mbps ☐ SMPS version ● SMPS version available (except for L4R5ZI planned in Q1-2018)

Association with shields

Sense

Power

Interact

Connect

Move

Internet of Things

STM32 Nucleo

Specialized functionality add-on

Smooth integration with
STM32Cube software library

Multiple IDEs
(Mbed™, IAR, Arm®…)

life.augmented

Nucleo expansion boards from ST

Sensors and analog

X-NUCLEO-IKS01A2
MOTION AND ENVIRONMENTAL SENSORS

X-NUCLEO-6180XA1
PROXIMITY AND AMBIENT LIGHT SENSOR

X-NUCLEO-53L0A1
PROXIMITY SENSOR

X-NUCLEO-CCA02M1
DIGITAL MICROPHONES

Translate

X-NUCLEO-IKA01A1
MULTIFUNCTIONAL EXPANSION BASED ON OPERATIONAL AMPLIFIERS

Communication

X-NUCLEO-IDB05A1
BLUETOOTH LOW ENERGY

X-NUCLEO-NFC04A1
DYNAMIC NFC TAG

X-NUCLEO-NFC05A1
NFC CARD READER

X-NUCLEO-PLM01A1
POWER LINE COMMUNICATION

X-NUCLEO-GNSS1A1
ASSISTED GNSS

X-NUCLEO-CCA01M1
SOUND TERMINAL

Motor drive

X-NUCLEO-IHM01A1
STEPPER MOTOR DRIVER

X-NUCLEO-IHM07M1
STEPPER MOTOR DRIVER

X-NUCLEO-IHM02A1
TWO AXIS STEPPER MOTOR DRIVER

X-NUCLEO-IHM06A1
LOW VOLTAGE STEPPER MOTOR DRIVER

X-NUCLEO-IHM03A1
HIGH POWER STEPPER MOTOR DRIVER

X-NUCLEO-IHM05A1
BIPOLAR STEPPER MOTOR DRIVER

X-NUCLEO-IHM04A1
DUAL BRUSH DC MOTOR DRIVER

X-NUCLEO-IHM12A1
LOW VOLTAGE DUAL BRUSH DC MOTOR DRIVER

X-NUCLEO-LED61A1
LED DRIVER

X-NUCLEO-IPS02A1
INTELLIGENT POWER SWITCH

www.st.com/x-nucleo

STM32 Power Shield key assets

Accurate power profiling

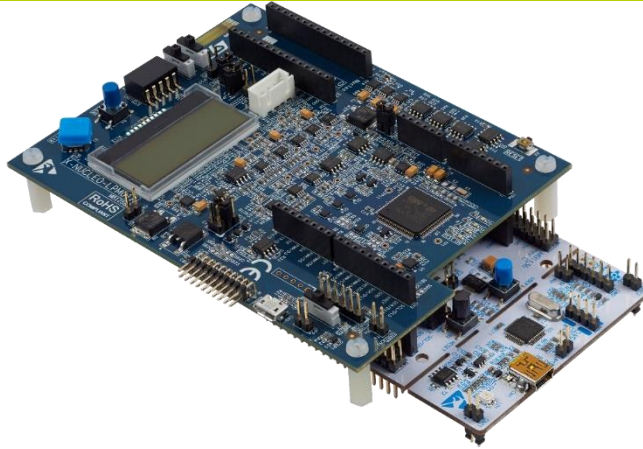Ultra-low power consumption measurements

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

life.augmented

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 :
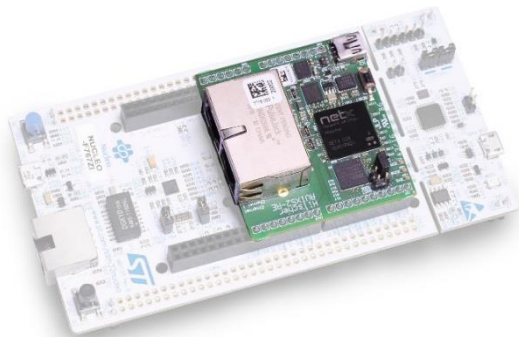 - Direct computation of ULPMark scores

Nucleo expansion boards from 3rd parties
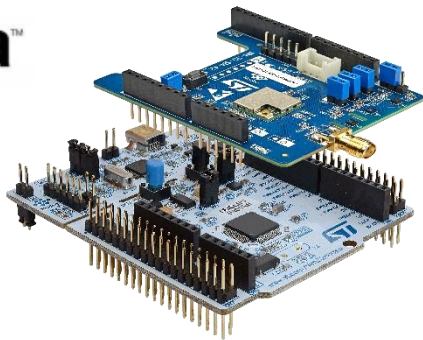
I-NUCLEO-LRWAN1
By USI®

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®

www.st.com/stm32evaltools (3rd party)

Latest Discovery kits

STM32L4R9I-DISCO

STM32F413H-DISCO

STM32F769I-DISCO

P-L496G-CELL01 &
P-L496G-CELL02
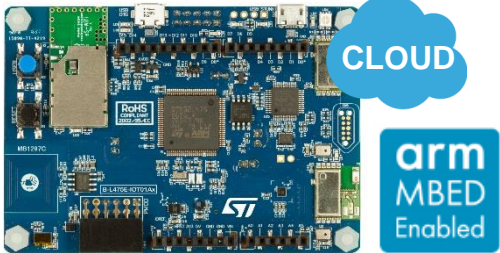
B-L475E-IOT01A

B-L072Z-LRWAN1

Part number	MCU	USB	Audio	Display	Connectivity	Expansion	arm MBED
32F0308DISCOVERY	STM32F030					Proprietary	Mbed
STM32F0DISCOVERY	STM32F051					Proprietary	
32F072BDISCOVERY	STM32F072	x				Proprietary	
STM32VLDISCOVERY	STM32F100					Proprietary	
STM32F3DISCOVERY	STM32F303	x				Proprietary	
32F3348DISCOVERY	STM32F334					Proprietary	Mbed
32L0538DISCOVERY	STM32L053	x		E-paper		Proprietary	
32L100CDISCOVERY	STM32L100					Proprietary	
32L152CDISCOVERY	STM32L152			LCD		Proprietary	
32L476GDISCOVERY	STM32L476	OTG	x	LCD		Proprietary	Mbed OS
32L496GDISCOVERY	STM32L496	OTG	x	Color LCD 240x240	Add-on (optional)	Arduino Uno, Pmod, STmod+, MikroBus, Grove	
32L4R9IDISCOVERY	STM32L4R9	OTG	x	Color AMOLED 360x360	Add-on (optional)	Arduino Uno, Pmod, STmod+, MikroBus, Grove	

www.st.com/stm32discovery

Discovery kit portfolio 2/3

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

STM32 F4

STM32 F7

www.st.com/stm32discovery

Discovery kit portfolio 3/3

Part number	MCU	Description	Key features	Expansion	arm MBED
B-L072Z-LRWAN1	STM32L072	All-in-one low-power wireless node	LoRa, Sigfox, WMbus AAA-battery operation	Arduino Uno, ST morpho	Mbed OS
B-L475E-IOT01A	STM32L475	All-in-one IoT node with low-power connectivity & multiway sensing	BLE, SubGHz, NFC, Wi-Fi, Sensors (digital microphone, 9-axis navigation, pressure, humidity, temperature, proximity/gesture detection)	Arduino Uno, Pmod	Mbed OS
P-L496G-CELL01	STM32L496	Worldwide Cellular IoT node 2G/3G pentaband	7.2 Mbps downlink, 5.76 Mbps uplink, eSIM and MicroSIM, 3-month dataplan included	Arduino Uno, Pmod, STmod+, MikroBus, Grove	
P-L496G-CELL02	STM32L496	Worldwide Cellular IoT node LTE cat M1 / cat NB1 / EGPRS pentaband	300 Kbps downlink, 375 Kbps uplink, eSIM and MicroSIM, 3-month dataplan included	Arduino Uno, Pmod, STmod+, MikroBus, Grove	

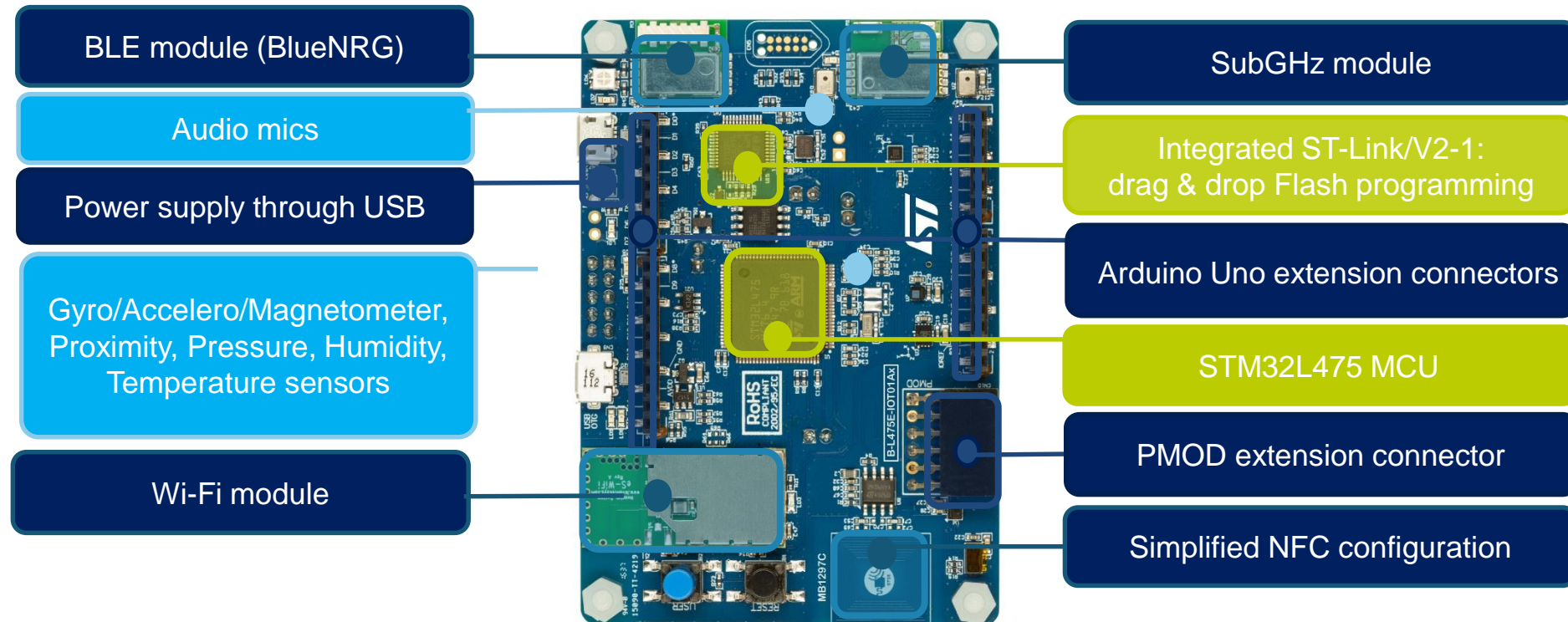|	
I-CUBE-LRWAN	LoRaWAN-compliant software expansion for STM32Cube
X-CUBE-SFOX	Sigfox-compliant software expansion for STM32Cube
X-CUBE-CLOUD	Cloud connectors as expansion for STM32Cube (Amazon Web Services, Microsoft Azure, IBM Watson)

www.st.com/stm32app-discovery

STM32L4 Discovery IoT node...

Multi-link communication, multiway sensing

BLE module (BlueNRG)

Audio mics

Power supply through USB

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

Wi-Fi module

SubGHz module

Integrated ST-Link/V2-1: drag & drop Flash programming

Arduino Uno extension connectors

STM32L475 MCU

PMOD extension connector

Simplified NFC configuration

B-L475E-IOT01A

life.augmented

...delivers user-friendly cloud access

Direct connection to cloud services

Low-power long-range communication

Environmental awareness: humidity, pressure, temp

Detection hub: motion, proximity, audio
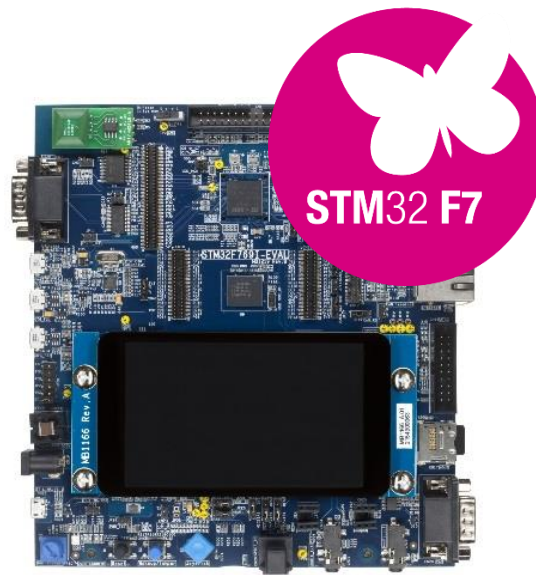
Direct support of communities

ARDUINO

arm MBED Enabled
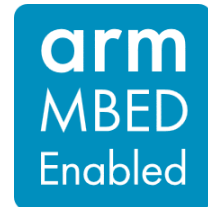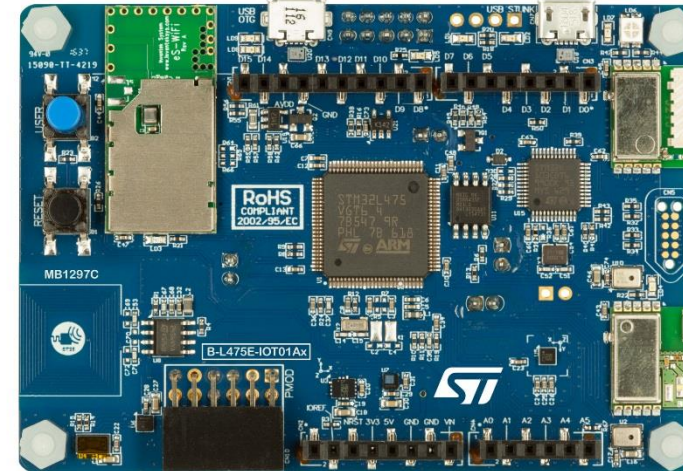
CLOUD

Cloud STM32Cube Expansion Packages

life.augmented

Latest Evaluation boards

STM32 L4+

STM32 F7

STM32 H7

STM32L4R9I-EVAL

STM32F769I-EVAL

STM32H743I-EVAL

Evaluation board portfolio

Mainstream

STM32 F0 · STM32 F1 · STM32 F3

Ultra-low-power

STM32 L4 · STM32 L0 · STM32 L1 · STM32 L4+

High-performance

STM32 F2 · STM32 F4 · STM32 F7 · STM32 H7

Part number	MCU	Part number	MCU	Part number	MCU	Part number	MCU
STM32072B-EVAL	STM32F072	STM32L073Z-EVAL	STM32L073	STM3220G-EVAL	STM32F207	STM32746G-EVAL	STM32F746
STM32091C-EVAL	STM32F091	STM32L152D-EVAL	STM32L152	STM3221G-EVAL	STM32F217	STM32756G-EVAL	STM32F756
STM32100E-EVAL	STM32F100	STM32L476G-EVAL	STM32L476	STM3240G-EVAL	STM32F407	STM32F769I-EVAL	STM32F769
STM3210E-EVAL	STM32F103	STM32L4R9I-EVAL	STM32L4R9	STM3241G-EVAL	STM32F417	STM32F779I-EVAL	STM32F779
STM3210C-EVAL	STM32F107			STM32429I-EVAL	STM32F429	STM32H743I-EVAL	STM32H743
STM32303E-EVAL	STM32F303			STM32439I-EVAL	STM32F439	STM32H753I-EVAL	STM32H753
STM32373C-EVAL	STM32F373			STM32446E-EVAL	STM32F446		
				STM32479I-EVAL	STM32F479		

www.st.com/stm32evaltools

STM32 Boards contribute to Communities

arm MBED Enabled

41 Boards
(full list here)

25 Expansion Boards
(full list here)

ARDUINO™

21 Boards
(full list here)

(libraries)

10 Expansion Boards
(full list here)

life.augmented
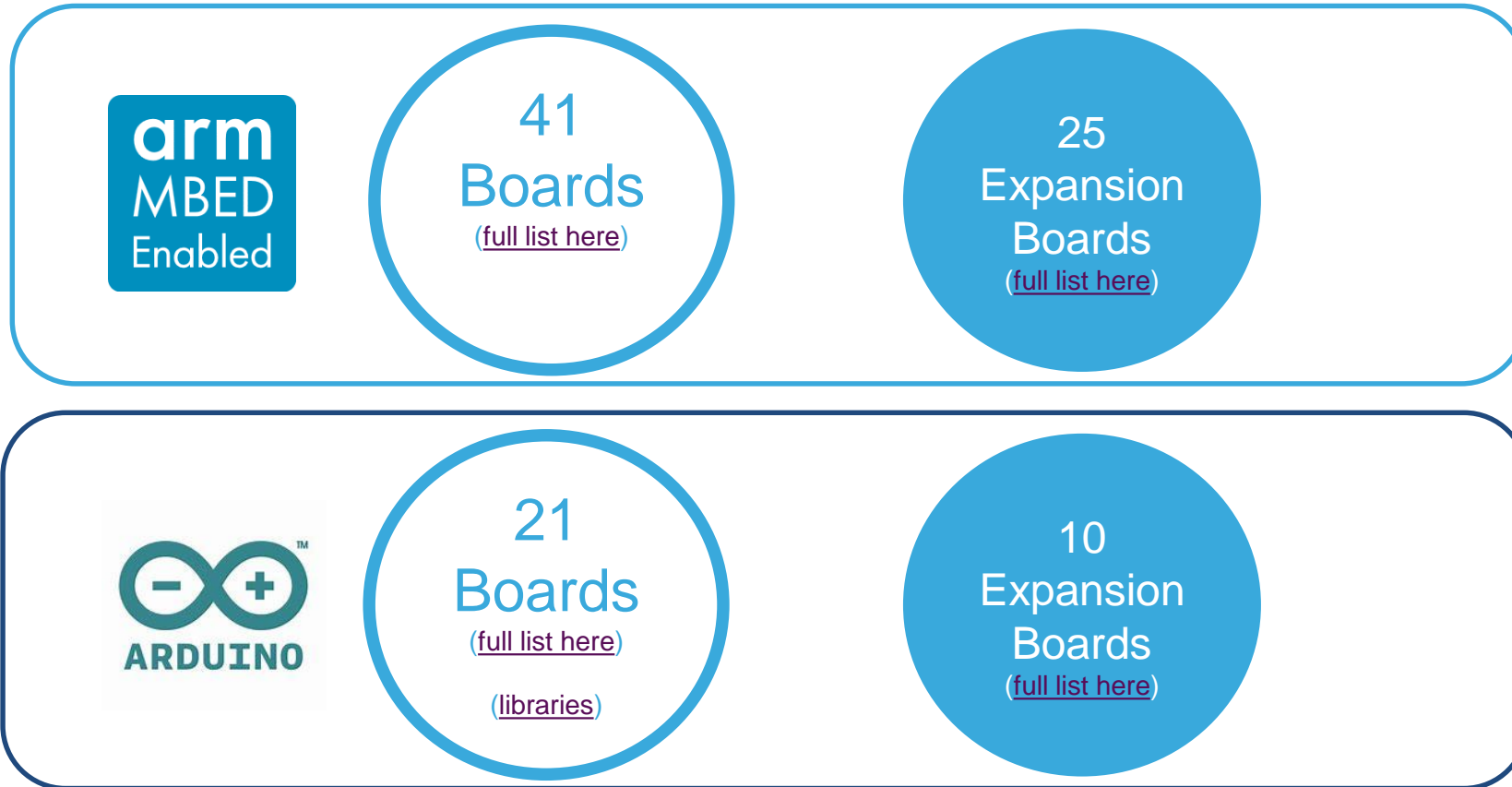
Releasing your creativity

STM32

/STM32

@ST_World

community.st.com

www.st.com/stm32hardwaretools