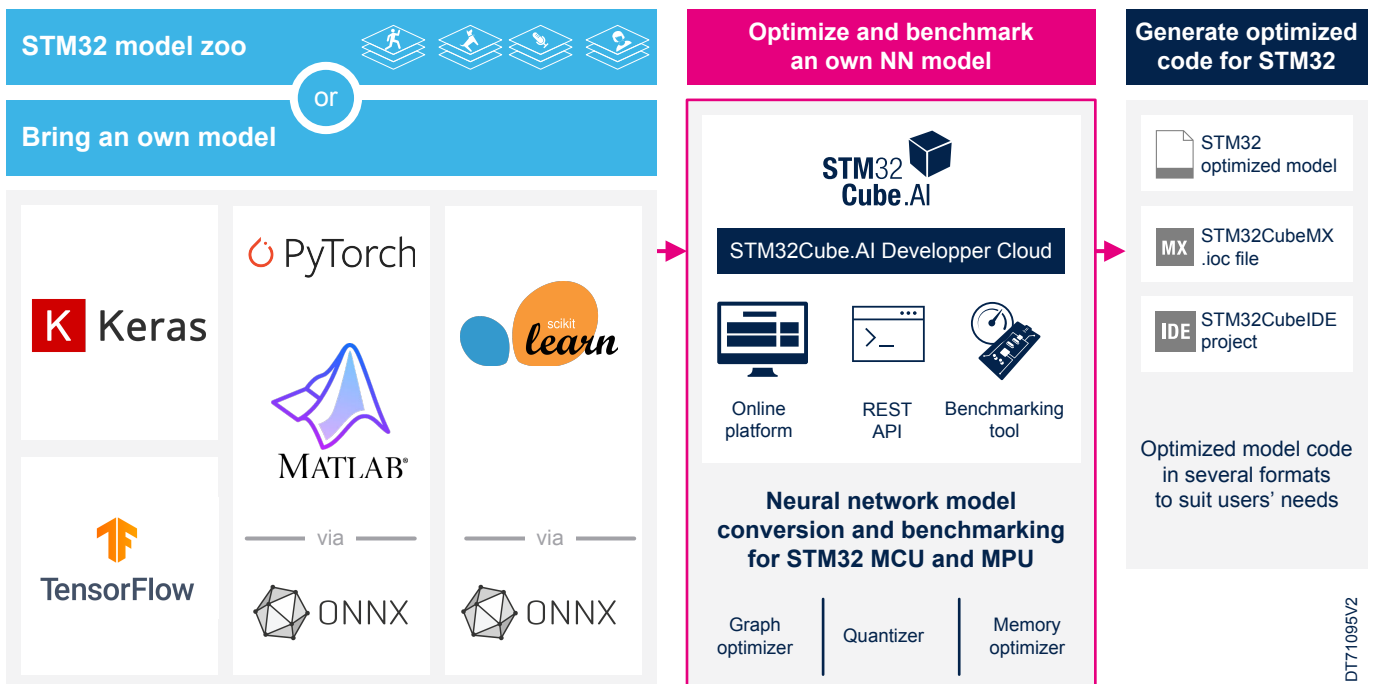


## Artificial intelligence (AI) developer cloud for STM32 microcontrollers and microprocessors



Product status link

[STM32CubeAI-DC](#)



## Features

- Online GUI (no installation required) accessible with STMicroelectronics extranet user credentials
- Network optimization and visualization providing the RAM and flash memory sizes needed to run on the STM32 target
- Quantization tool to convert a floating-point model into an integer model
- Benchmark service on the STMicroelectronics hosted board farm including various STM32 boards to make the most suited hardware selection
- Code generator including the network C code and optionally the whole STM32 project
- STM32 model zoo:
  - Easy access to model selection, training script, and key model metrics, directly available for benchmark
  - Application code generator from the user's model with "Getting started" code examples
  - ML workflow automation service with Python™ scripts (REST API)
- For STM32 MCUs, supports all the X-CUBE-AI features, such as:
  - Native support for various deep learning frameworks such as Keras and TensorFlow™ Lite, and support for all frameworks that can export to the ONNX standard format such as PyTorch™, MATLAB®, and more
  - Support for the 8-bit quantization of Keras networks and TensorFlow™ Lite quantized networks
  - Support for various built-in scikit-learn models such as isolation forest, support vector machine (SVM), K-means, and more
  - Possibility to use larger networks by storing weights in external flash memory and activation buffers in external RAM
  - Easy portability across different STM32 microcontroller series
- Supports all STM32 MPU series with the following features:
  - Native support for various deep learning frameworks such as Keras and TensorFlow™ Lite, and support for all frameworks that can export to the ONNX standard format such as PyTorch™, MATLAB®, and more
  - Support for the 8-bit quantization of Keras networks and TensorFlow™ Lite quantized networks
  - Support for various built-in scikit-learn models such as isolation forest, support vector machine, K-means, and more
  - CPU inference via TensorFlow™ Lite runtime or ONNX Runtime for the STM32 microprocessors that do not support AI hardware acceleration
  - NPU/GPU inference processing for the STM32 microprocessors that support AI hardware acceleration
- User-friendly license terms

## Description

STM32Cube.AI Developer Cloud ([STM32CubeAI-DC](#)) is a free-of-charge online platform and services to create, optimize, benchmark, and generate artificial intelligence (AI) for the STM32 microcontrollers and microprocessors based on the Arm® Cortex® processors. It can leverage AI hardware acceleration (neural processing unit, NPU) whenever available in the target hardware.

STM32CubeAI-DC uses the ST edge AI core technology, which is STMicroelectronics technology to optimize NN models for any STMicroelectronics products with AI capabilities. For STM32 MCUs, its performance is identical to the X-CUBE-AI Expansion Package used with [STM32CubeMX](#). Find STM32Cube.AI Developer Cloud at [stm32ai-cs.st.com](http://stm32ai-cs.st.com).

*Note:* Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

## 1 Access information

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Free access to [STM32CubeAI-DC](https://stm32ai-cs.st.com) is available at [stm32ai-cs.st.com](https://stm32ai-cs.st.com). Log in with STMicroelectronics extranet credentials.

## 2 License

The access to STM32Cube.AI Developer Cloud is granted under the *Software License & Service Agreement for Access to STM32Cube.AI Developer Cloud and Licensed Materials* ([stm32ai-cs.st.com/assets/EN\\_STM32CubeAI-DC\\_SLA\\_For\\_Access.pdf](http://stm32ai-cs.st.com/assets/EN_STM32CubeAI-DC_SLA_For_Access.pdf)).

The online platform comes with different license schemes as shown in Table 1.

**Table 1. Software component license agreements**

Software component	Copyright	License
h5py	Copyright (c) 2008 Andrew Collette and contributors <a href="http://h5py.alven.org">http://h5py.alven.org</a> (see note). All rights reserved. <i>Note: refer to <a href="http://docs.h5py.org/en/stable/licenses.html">http://docs.h5py.org/en/stable/licenses.html</a>.</i>	BSD-3-Clause
Keras	All contributions by François Chollet: Copyright (c) 2015 - 2018, François Chollet. All rights reserved. All contributions by Google: Copyright (c) 2015 - 2018, Google, Inc. All rights reserved. All contributions by Microsoft: Copyright (c) 2017 - 2018, Microsoft, Inc. All rights reserved. All other contributions: Copyright (c) 2015 - 2018, the respective contributors. All rights reserved.	The MIT License
ONNX	Copyright © 2019 ONNX Project Contributors	The MIT License
matplotlib	Copyright (c) 2012-2013 Matplotlib Development Team; All Rights Reserved	Python Software Foundation, Version 2 <sup>(1)</sup>
numpy		BSD-3-Clause
scikit-learn	Copyright (c) 2007–2018 The scikit-learn developers. All rights reserved.	BSD-3-Clause
scikit-image	Copyright (C) 2011, the scikit-image team All rights reserved.	
scipy	Copyright © 2003-2013 SciPy Developers. All rights reserved.	
six	Copyright (c) 2010-2018 Benjamin Peterson	The MIT License
tensorflow <sup>(2)</sup>	Copyright 2018 The TensorFlow Authors. All rights reserved.	Apache License 2.0
Theano	Copyright (c) 2008–2017, Theano Development Team All rights reserved. Contains code from NumPy, Copyright (c) 2005-2016, NumPy Developers. All rights reserved. Contains CnMeM under the same license with this copyright: Copyright (c) 2015, NVIDIA CORPORATION. All rights reserved. Contains frozendict code from slezica's python-frozendict ( <a href="https://github.com/slezica/python-frozendict/blob/master/frozendict/__init__.py">https://github.com/slezica/python-frozendict/blob/master/frozendict/__init__.py</a> ), Copyright (c) 2012 Santiago Lezica. All rights reserved.	BSD-3-Clause

Software component	Copyright	License
typing	Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 Python Software Foundation; All Rights Reserved	Python Software Foundation, Version 2
Jinja2	Copyright (c) 2009 by the Jinja Team	BSD-3-Clause
networkx	Copyright (C) 2004-2012, NetworkX Developers Aric Hagberg <hagberg@lanl.gov> Dan Schult <dschult@colgate.edu> Pieter Swart <swart@lanl.gov> All rights reserved.	BSD-3-Clause

1. Matplotlib only uses BSD-compatible code, and its license is based on the PSF license.
2. TensorFlow is a trademark of Google Inc.

## Revision history

**Table 2. Document revision history**

Date	Revision	Changes
24-Jan-2023	1	Initial release.
08-Apr-2024	2	Added the support for STM32 microprocessors and AI hardware acceleration: <ul style="list-style-type: none"><li>Updated the document title and the cover image</li><li>Updated <a href="#">Features</a> and <a href="#">Description</a></li></ul>

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