

This checklist must be submitted as a PDF as part of your submission.

Name of Certifying Engineer(s): Ben Hawks
Email of Certifying Engineer(s): bhawks@fnal.gov
Name(s) of System Under Test: Xilinx Pynq-Z2

Division (check one):

- ☒ Open
- ☐ Closed

Category (check one):

- ☒ Available
- ☐ Preview
- ☐ Research, Development, and Internal (RDI)

Benchmark(s) (check all that apply):

- ☐ Visual Wake Words
- ☐ Keyword Spotting
- ☒ Anomaly Detection
- ☒ Image Classification

Please fill in the following table adding lines as necessary:

System Under Test Name	Benchmark	Accuracy/AUC
Pynq Z2	Anomaly Detection	74.6%/82%
Pynq Z2	Image Classification	76.5%/88%

For each SUT, is the benchmark Accuracy/AUC target met? (Not a requirement for the Open division) (check all that apply):

- ☐ Yes (Visual Wake Words ... 80% Accuracy)
- ☐ Yes (Keyword Spotting ... 90% Accuracy)
- ☐ Yes (Anomaly Detection ... 0.85 AUC)
- ☐ Yes (Image Classification ... 85% Accuracy)
- ☐ No, for some combination of benchmark, scenario and SUT

For each SUT and benchmark, did the submission run on the whole validation set in accuracy mode? (check one):

- ☒ Yes
- ☐ No

For each SUT and benchmark, does the submission use the EEMBC Runner? (check one)

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☒ Yes

☐ No

For each SUT and benchmark, is the same code run in accuracy and performance modes?
(check one)

☒ Yes

☐ No

Are the weights calibrated using data outside of the official calibration set? (check one)

☐ Yes

☒ No

What numerics does the submission use? (check all that apply)

☐ INT4

☒ INT8

☐ INT16

☒ UINT8

☐ UINT16

☐ FP11

☐ FP16

☐ BF16

☐ FP32

☒ Other, please specify: ap_fixed <32,6>, <16,6>, <14,6>, <11,11>, <11,6>, <11,1>, <12,6>, <9,6>, <8,8>, <8,6>, <8,3>, ap_ufixed <8,0>

What backend does the submission use? (check all that apply)

☐ Vendor backend, please name:

☐ TF-Lite Micro

☐ Micro TVM

☒ Other, please specify: hls4ml

Which of the following caching techniques does the submission use? (check all that apply, ideally none):

☐ Caching Inputs between iterations

☐ Caching responses between iterations

☐ Caching intermediate computations between iterations

Which of the following techniques does the submission use? (check all that apply, ideally none if submitting to the closed division.)

☒ Quantization aware training

☐ Wholesale weight replacement

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- ☐ Weight supplements
- ☐ Discarding non-zero weight elements
- ☐ Pruning
- ☐ Modifying weights during the timed portion of an inference run
- ☐ Hard coding the total number of queries
- ☐ None of the above

Is the submission congruent with all relevant MLPerf rules?

- ☒ Yes
- ☐ No

If the answer to the above question is no, please explain:

For each SUT, have you filled out the JSON system description file?

- ☒ Yes
- ☐ No

For each SUT, does the submission accurately reflect the real-world performance of the SUT?

- ☒ Yes
- ☐ No

Does your submission include the following: (check all that apply)

- ☒ System description file
- ☒ Code that implements the benchmarks
- ☒ Code/scripts that train the model(s) (Open Division)
- ☒ Metadata that describes each system-implementation combination tested
- ☒ Scripts that set up and execute each system implementation tested
- ☒ Result logs for each system implementation tested
- ☒ This Checklist