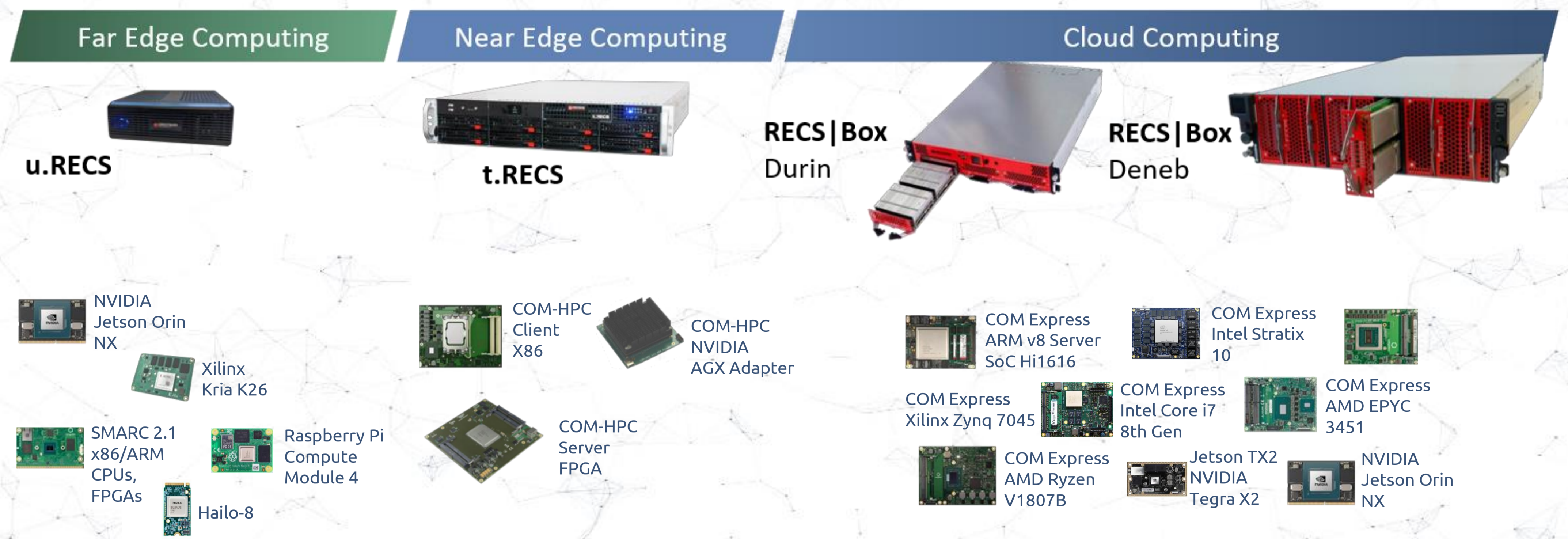


## Evaluation of heterogeneous AIoT Accelerators within VEDLIoT

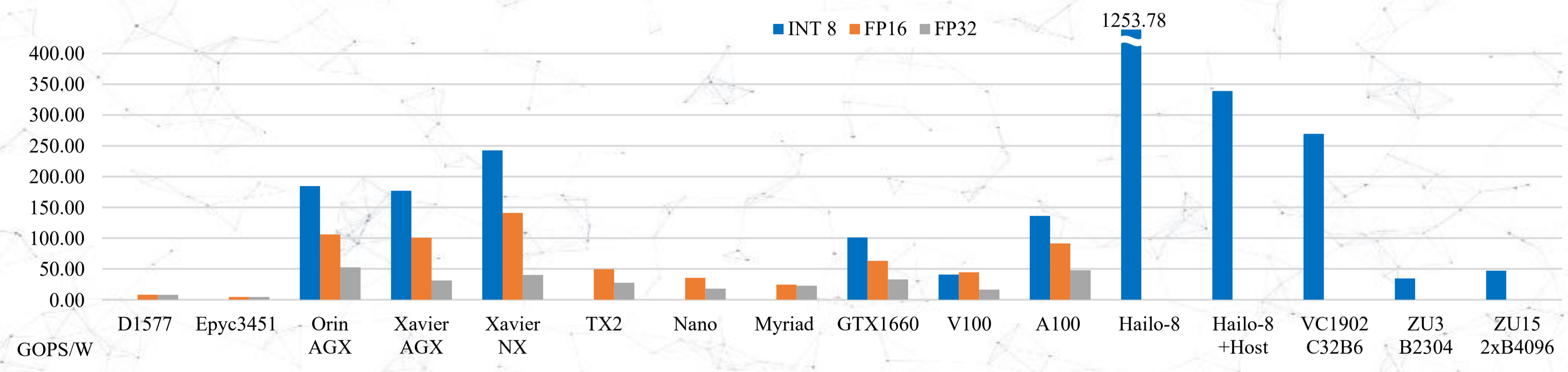
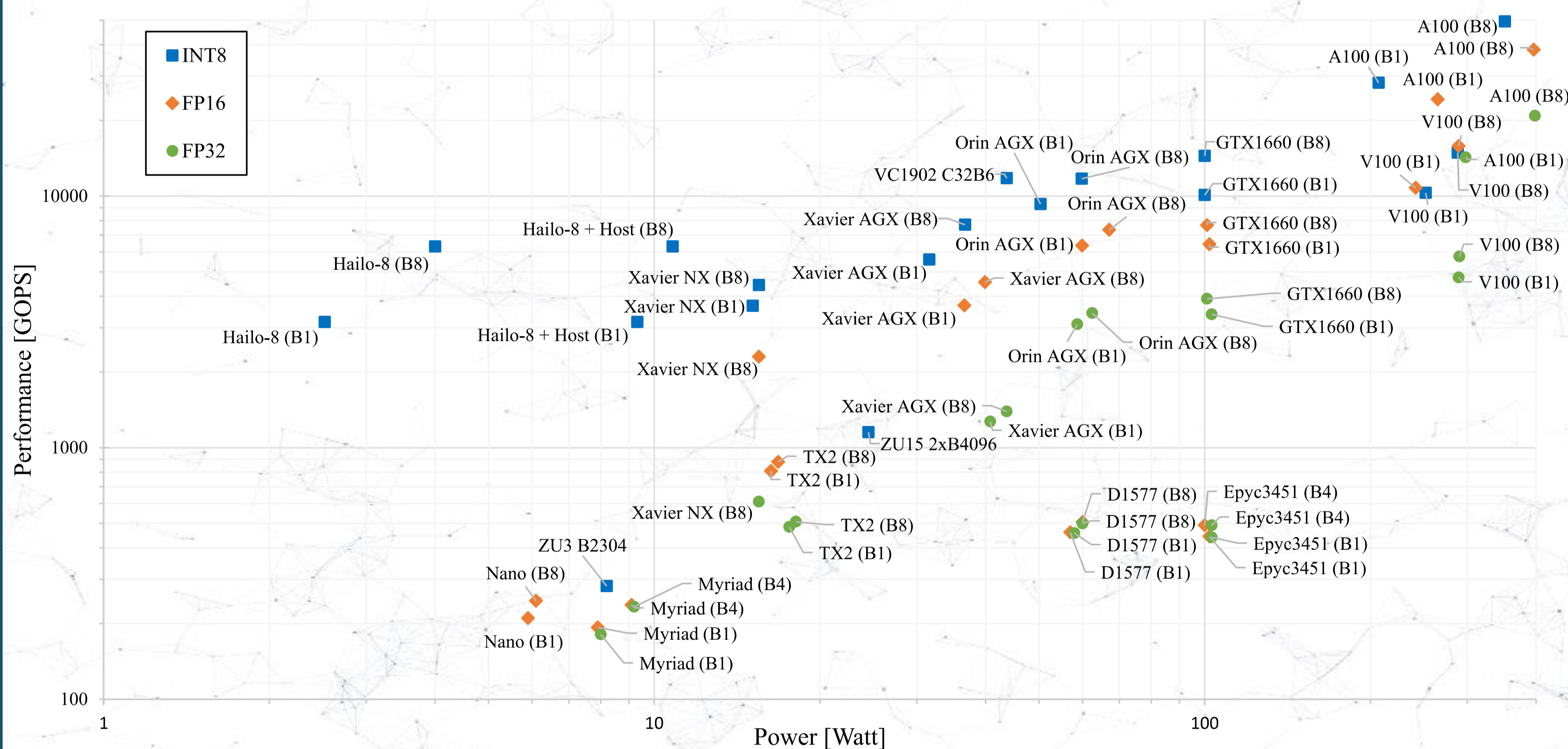
### OVERVIEW

Within VEDLIoT, a project targeting the development of energy-efficient Deep Learning for distributed AIoT applications, several accelerator platforms based on technologies like CPUs, embedded GPUs, FPGAs, or specialized ASICs are evaluated. The VEDLIoT approach is based on modular and scalable cognitive IoT hardware platforms. Modular microserver technology enables the integration of different, heterogeneous accelerators into one platform. Benchmarking of the different accelerators takes into account performance, energy efficiency and accuracy. The results in this paper provide a solid overview regarding available accelerator solutions and provide guidance for hardware selection for AIoT applications from far edge to cloud.

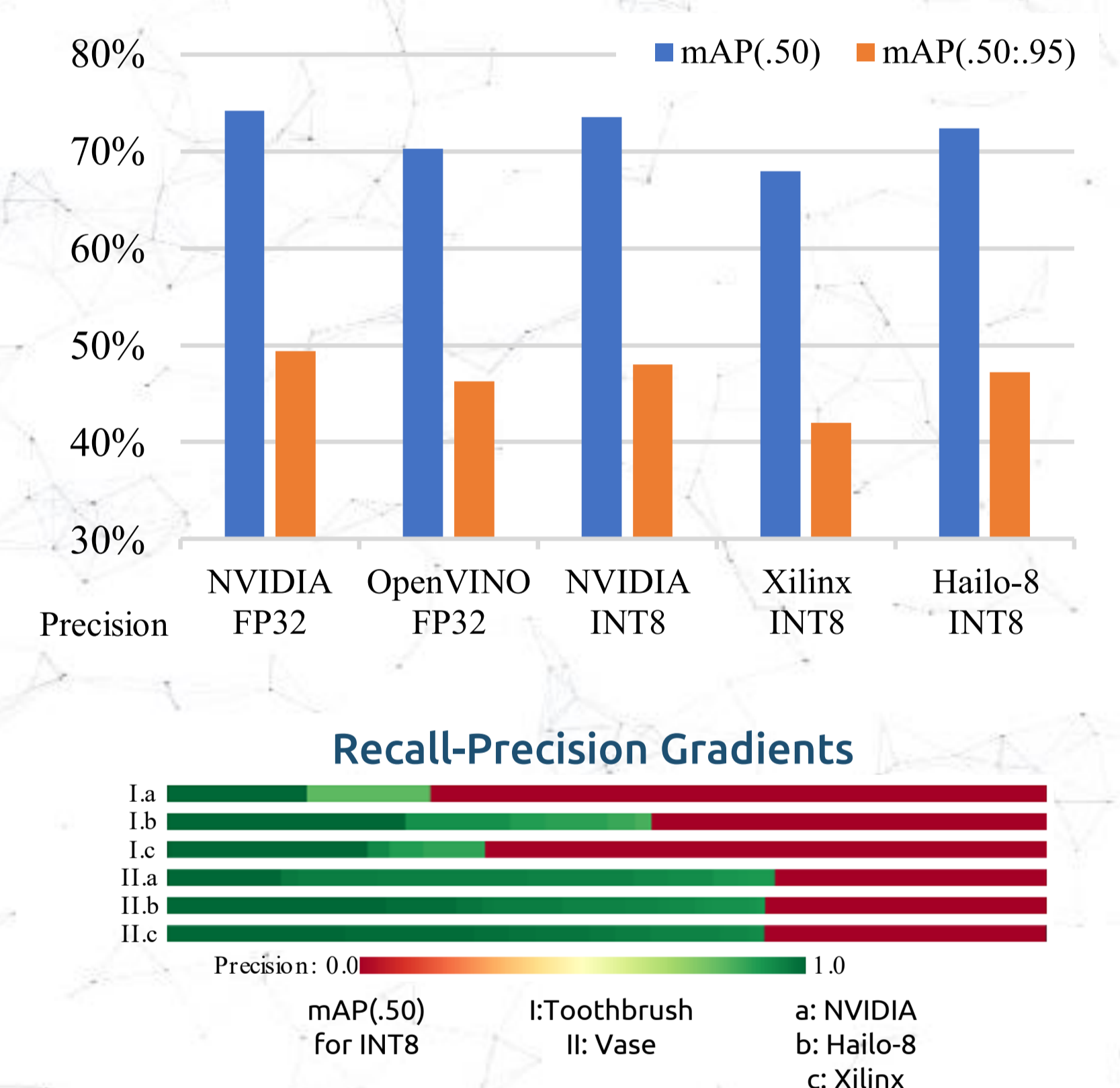
### VEDLIoT AIoT Hardware Platform



### Performance evaluation of YoloV4



### Accuracy Evaluation



### Summary

- Evaluation of 16 different accelerators
  - >100 combinations of batch size and quantization
- Evaluation using vendor specific toolchains
  - Verification by accuracy analysis
  - In-depth analysis of Recall-Precision gradients
- Provides guidance for hardware selection
- More results available upon request
  - Including MobileNet and ResNet

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### PARTNERS

