UNTETHER AI

tsunAImi® accelerator cards tsn800

Key Features

- 2 PetaOps of inference performance
- 800MB of on-chip SRAM
- Low latency, batch = 1
- 80,000 fps ResNet-50 V1.5
- 12,000 qps Bert-base
- 32GB/s PCIe bandwidth
- Multi-chip partitioning of large neural networks
- Thermal monitoring

Overview

The tsunAImi® tsn800 accelerator card is built for high performance servers and data centers, delivering an industry best compute density of over 2 PetaOps of INT8 performance. The tsn800 is powered by four runAI200™ devices, and due to their superior power efficiency, remains within a 300W Thermal Design Point (TDP). The x16 PCI-Express Gen4 interface supports up to 32 GB/s of bandwidth, enough for the most demanding AI applications.

Applications

The on-board runAI200 devices are designed to accelerate a multiplicity of AI workloads, such as vision-based convolutional networks, transformer networks for natural language processing, and time-series analysis for financial applications.

Markets	Application	Networks
Vision	Classification, object detection, semantic segmentation	ResNets, YOLO, SSD, Unets
Natural language processing	Text-to-speech, speech-to-text, chatbots	RNNs, Attention, BERT
Financial technology	X-Value adjustments, credit risk, portfolio balancing	TCNs, LSTMs

imAIgine Software Development Kit

The imAIgine SDK gives developers powerful automated tools and supporting software to quickly go from pilot model to production. It is organized into three parts.

The imAIgine Compiler

- Import TensorFlow, PyTorch, or ONNX graphs directly
- Automated quantizer and extracts performance without sacrificing accuracy
- Specify performance levels, silicon utilization, and power consumption targets

The imAIgine Toolkit

- Evaluate functionality and performance using the extensive profiling and simulation tools

The imAIgine Runtime

- Provides C-based API for integration into your deep learning environment
- Monitor the health and temperature of the tsunAImi® acceleration cards to ensure proper operation and prevent thermal damage

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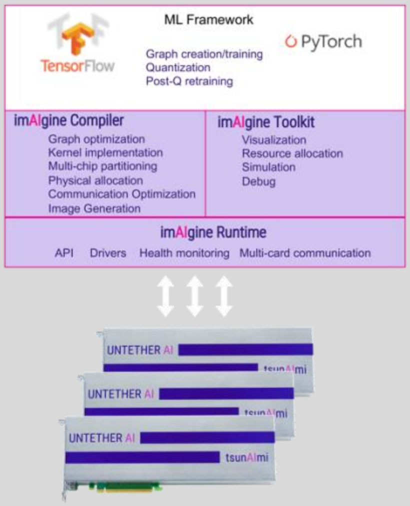

Familiar frameworks
Quantization and layer optimization done in familiar ML framework

Automated graph lowering
Optimization and allocation algorithms

Extensive feedback
Resource allocations, congestions, cycle-accurate simulation

Easily integrated runtime
Hardware abstraction, communication, and monitoring

Product Specification

Specification	tsunAImi® tsn800 accelerator card
Form factor	Double-wide, full height, full length PCIe
PCIe Interface	X16 PCIe Gen4
Clock Frequency	Variable, Up to 840 MHz
Memory	800MB on-chip SRAM

Thermal Specification

Parameter	tsunAImi® tsn800 accelerator card
Total board power	TDP 300W, typical application power ~200W
Cooling	Passive or active heatsink options available
runAI200 maximum operating temperature	85°C Junction

Environmental

Parameter	tsunAImi® tsn800 accelerator card
Operating temperature	0°C to 55°C
Storage temperature	-40°C to 75°C
Operating humidity	5% to 90% relative humidity
Storage humidity	5% to 95% relative humidity

Power Connector

8-pin CPU power connector, capable of suppling 300W

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