Tachyum is developing the industry’s first universal processor, AI, and supercomputing chip – Prodigy.

Prodigy has >3x higher performance and up to 10x lower energy consumption than its competition.

Prodigy solves key issues plaguing today’s data centers, including high power consumption, low server utilization, and the processor performance plateau that is limiting performance.

Company and Product Overview

Tachyum is a semiconductor company developing the world’s first universal processor, Prodigy, which unifies the functionality of CPU, GPGPU, and TPU into a single monolithic device, delivering unprecedented performance, power efficiency, and TCO reduction for a wide range of applications and workloads, including cloud and HPC/AI.

Prodigy’s revolutionary architecture solves key issues that are plaguing today’s data centers, including high power consumption and low server utilization. With Prodigy, hyperscale data centers can run cloud workloads during peak hours and AI workloads during off hours, keeping servers running 24/7.

Prodigy eliminates the need for costly and power-hungry accelerators, enabling high performance data centers to be deployed with a homogeneous architecture, enabling a simple software model and easy, straightforward maintenance.

In addition to running its native instruction set architecture, Prodigy also runs the binaries for x86, Arm, and RISC-V, providing fast, easy, out-of-the-box testing and evaluation.

Tachyum has approximately 100 employees with engineering teams in the Silicon Valley and Slovakia, and the corporate office in Nevada near Las Vegas.

Target Markets

The Prodigy family of processors encompasses eight product SKUs ranging from 192 to 48 cores with a wide range of performance, power, and features to address the following key markets:

- Cloud
- Data Analytics
- Big Data Databases
- Crypto/Digital Currency
- Edge
- Telco
- Storage

SPECrate 2017 Integer

Prodigy up to 4.5x higher performance than competition.

HPC – FP64

Prodigy 3x higher performance than Nvidia H100.

AI – FP8

Prodigy 3-6x higher performance than Nvidia H100.
Prodigy CPU
- 192 CPU cores running up to 5.7 GHz
- Hardware coherency supports 2 and 4-socket platforms
- 16 DDR5-7200 memory controllers
- 96 lanes of PCIe 5.0
- 10 terabit/sec full mesh interconnect
- Runs binaries for x86, ARM, and RISC-V
- 5nm process technology

HPC/AI Features
- 2x1024-bit vector units per core
- 4096-bit matrix processor per core
- Wide range of data types from FP64 to FP8
- Sparsity and super-sparsity

Prodigy SKU Summary

<table>
<thead>
<tr>
<th>Workloads</th>
<th>SKUs</th>
<th>Cores</th>
<th>Freq (GHz)</th>
<th>DDR5 Controllers</th>
<th>PCIe 5.0</th>
<th>TDP (est.)</th>
<th>Applications</th>
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<tr>
<td>Top-End HPC/AI</td>
<td>T16192-AIX</td>
<td>192</td>
<td>5.7</td>
<td>16 x 7200+</td>
<td>96 lanes</td>
<td>950W</td>
<td>HPC, Big AI</td>
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<tr>
<td>Mid-Range HPC/AI</td>
<td>T16192-AIM</td>
<td>192</td>
<td>4.5</td>
<td>16 x 7200+</td>
<td>96 lanes</td>
<td>700W</td>
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<td>Entry-Level HPC/AI</td>
<td>T16192-AIE</td>
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<td>4</td>
<td>16 x 7200+</td>
<td>96 lanes</td>
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<td>HPC, Big AI</td>
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<tr>
<td>Throughput</td>
<td>T16192-HT</td>
<td>192</td>
<td>4.5</td>
<td>16 x 6400</td>
<td>96 lanes</td>
<td>300W</td>
<td>Analytics, Big Data</td>
</tr>
<tr>
<td>Speed</td>
<td>T896-HS</td>
<td>96</td>
<td>5.7</td>
<td>8 x 6400</td>
<td>48 lanes</td>
<td>300W</td>
<td>Cloud, Databases</td>
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<tr>
<td>Efficiency</td>
<td>T896-HT</td>
<td>96</td>
<td>4.5</td>
<td>8 x 6400</td>
<td>48 lanes</td>
<td>300W</td>
<td>Cloud, Databases</td>
</tr>
<tr>
<td>Entry Level</td>
<td>T848-HS</td>
<td>48</td>
<td>5.7</td>
<td>8 x 6400</td>
<td>48 lanes</td>
<td>300W</td>
<td>Scalar Workloads</td>
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<tr>
<td>Lowest Power</td>
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<td>48</td>
<td>3.2</td>
<td>8 x 4800</td>
<td>48 lanes</td>
<td>150W</td>
<td>Hosting, Storage, Edge</td>
</tr>
</tbody>
</table>

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Brochure v1_230817