Prodigy Compared with Homogeneous and Heterogeneous Computer Architectures
Traditional Homogeneous vs. Heterogeneous Architectures

**Homogeneous**

- Pros
  - General purpose, flexible
  - Easy deployment/maintenance
- Cons
  - Not designed for HPC or AI
  - Low parallel performance for modern workloads

**Heterogeneous**

- Pros
  - Accelerates specific workloads, including HPC and AI
  - Scalable
- Cons
  - Requires special programming/config
  - Expensive, power-hungry
  - Under-utilized — contrary to software defined data center
Tachyum Prodigy – Advantages of Homogeneous and Heterogeneous Architectures without the Disadvantages

- High Integer Performance for General Purpose Workloads
  - Up to 128 general purpose cores
- High Floating Point Performance for Parallel Workloads
  - Dual 512b vector units provide high performance HPC, AI/ML
- Scalable
  - Family of 16 – 128 core devices with support 2P and 4P platforms
- Common Software – Easy Deployment/ Maintenance
  - All cores part of same ISA
- High Memory Bandwidth
  - 16 DDR5 controllers provides best in industry bandwidth

Samples Q4 ‘21

Q2 ’21: Emulation for early adopters
Q3 ’21: Emulation system general access
Q4 ’21: Device samples
# Prodigy Delivers Key Requirements for Target Markets

<table>
<thead>
<tr>
<th></th>
<th>Hyperscale/Cloud</th>
<th>HPC</th>
<th>AI/ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Integer Performance</td>
<td>✔️</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Single-thread Performance</td>
<td>✔️</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Performance Parallel Processing</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>High Memory Bandwidth</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Scalable, including large memory footprint</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Easy Deployment and Maintenance</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Cost and Power Efficient</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Special and compressed data types</td>
<td></td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>4-bit data pipes for inference – Int4</td>
<td></td>
<td></td>
<td>✔️</td>
</tr>
</tbody>
</table>
Case Study: Repurposing Idle Servers in Hyperscale Data Center

Facebook web servers sit idle during off hours

![Facebook Idle Servers In Day](chart)

**Prodigy keeps servers fully utilized 24/7**

- AI/ML workloads during off hours
- Web servers during peak hours
- High efficiency, Low TCO

![Prodigy servers in use](servers)
Thank You!

visit

www.Tachyum.com