**Universal Processor Semiconductor Company**

**Products**
Fastest processor for cloud servers/HPC/AI

**Value**
3x lower cost
10x lower power

**Initially: AI/HPC**
Tachyum ports Linux & GCC

**Our Market: Hyperscale**
Existing binaries run via QEMU
Recompiled applications
Performance Plateau: Slow Wires

Processor Plateau 4.5GHz today
- 2005 Pentium-4 was 3.8GHz
- Transistor speedups 30% per 24 months → should be 20GHz now
- Process shrink makes wires slower

GPUs are only better in a few apps
ARM is too slow
Universal Processor for Servers / HPC / AI

Server / Supercomputer / AI Chip
For hyperscale datacenters

1st time humanity can simulate human brain sized AI in real-time

Best of CPU, GPU and TPU
CPU: easy to program but costly
GPU: faster but harder to program
TPU: faster but very limited
Solution: Fast & 10x More Efficient Processor

Faster than Xeon but smaller than ARM processors
Short wires reduce wire delays
Out-of-Order execution with compiler vs. hardware

Existing applications can run without changes
Recompile to exceed Xeon performance
Dynamic binary translation for existing binaries

64 cores, each faster than Xeon Core
4GHz, 8 DDR4/5, 72 PCIE 5.0, 2x 400G Ethernet
4 HBM2e, 32MB coherent cache
7nm FinFET process with no custom design
50-70% of server time wasted
<5% servers have AI GPU (CPUs are too slow)

Universal Processor / HPC / AI Chip
Enables 10x more AI using idle servers

Rat → Human Brain Needs 1,000x Speedup
256,000 Tachyum chips deliver $10^{19}$ FLOPS

>100 Brain-Capable Datacenters
Facebook has 442,368 servers in datacenters
40% utilization means 256,000 idle servers
Chips Shipping in 2020

Faster & 10x lower power processor

3x lower cost in $24B market growing 15% annually

**Forbes** Human Brain Sized AI: Coming Soon To a Cloud Data Center Near You

**HPC** coming onto the HPC/hyperscale scene with intriguing & bold claims

**Solutions to Unsustainable Energy Consumption of Data Centers and Brain Scale AI**

**MICROPROCESSOR report**

massive profits available in the server market, Tachyum is taking educated risk

**RED HERRING** 2018 Winner

**TACHYUM** 2018 CES A