



## Tachyum Prodigy® Emulation System

The FPGA Prodigy Emulation System is comprised of two FPGA-based boards: the Prodigy CPU Emulation Board and the Prodigy DDR-IO Emulation Board to provide system emulation for a complete CPU, memory, I/O, and management complex.

Multiple CPU and DDR-IO boards can be cascaded to fully emulate an entire 128-core Prodigy device. and the combination of the two boards enables our engineers to fully test the Prodigy device functionality, as well as allowing our customers to do early testing and software development ahead of chip availability.

### Prodigy Emulation System Modules:

#### Prodigy CPU Emulation Board

- Fully emulates 8 Prodigy CPU Cores in 4 FPGAs
  - o 2 Cores per FPGA
- Vector and matrix operations.
- Fixed and floating-point units.

#### Prodigy DDR-IO Emulation Board

- Connects to the Prodigy CPU Emulation Board to provide memory and I/O connectivity.
- Delivers the following advanced functionality to support high performance connectivity and enhanced management:
  - o 4 channels of DDR4 supporting 2 DIMMs per channel for a total of 8 DIMMs (Note: The Prodigy silicon supports DDR5).
  - o 32 lanes of PCIe 3.0 with four PCIe connectors (Note: The Prodigy silicon supports PCIe 5.0).
  - o Aspeed AST2600 Baseboard Management Controller (BMC).
  - o OCP Secure Control Module (SCM) (optional).
  - o Multiple additional interfaces that include a 1 GbE management port, two USB ports, and UARTs.



[www.Tachyum.com](http://www.Tachyum.com)



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# Tachyum Prodigy® Emulation System Specifications

Processor Subsystem	
Processors Supported	Tachyum Prodigy family of devices up to 128 cores
Processor Sockets	1, 2, or 4
System Bus	Tachyum (C2C) Interconnect; 112 Gb/s for multi-socket emulation
L2 Cache	1 MB/core
Memory	
Capacity	Up to 8 TB RDIMM
Type	Up to 2400 MT/s DDR4 UDIMM, RDIMM, and LRDIMM
Size	Up to 8 DDR4 DIMM per board, or up to 32 DDR4 DIMM for the system. Support for NVDIMM-N
Storage, I/O, Management, Security	
Storage	Drive bay with 2 NVMe drives (2.5") One PCIe x4 M.2 SSD module for fast boot
Expansion Slots	One PCIe x16 HHHL slot One PCIe x8 slot
BMC Chipset	ASPEED AST2600
Remote Management	IPMI v2.0 Compliant
LAN	One GbE Dedicated BMC port
TPM	TPM 1.2/2.0
Form Factor, Power Supply, and Physical Specifications	
Form Factor	Multi-boards interconnect
Power Supply	Multiple ATX Power Supplies
Form Factor and Dimensions	12U (Open Rack); 600 (W) x 450 (D) x 640 (H) (mm) <ul style="list-style-type: none"> <li>Configuration for 8 processor boards, 2 I/O boards</li> <li>64 Prodigy cores, 8 channels of DDR4</li> </ul>
Operating System	
Support List	Linux 5.10
Development Tool Set	
Intel/Altera USB Blaster	PL-USB2-BLASTER (Programming FPGA's)
Software Debugger	JTAG Debugger from Segger (or equivalent), 20 pins standard
Operating Environment	
Operating Environment Specifications	Operating temperature: 5°C to 40°C Non-operating temperature: -40°C to 70°C Operating relative humidity: 20% to 85%RH Non-operating relative humidity: 10% to 90%RH