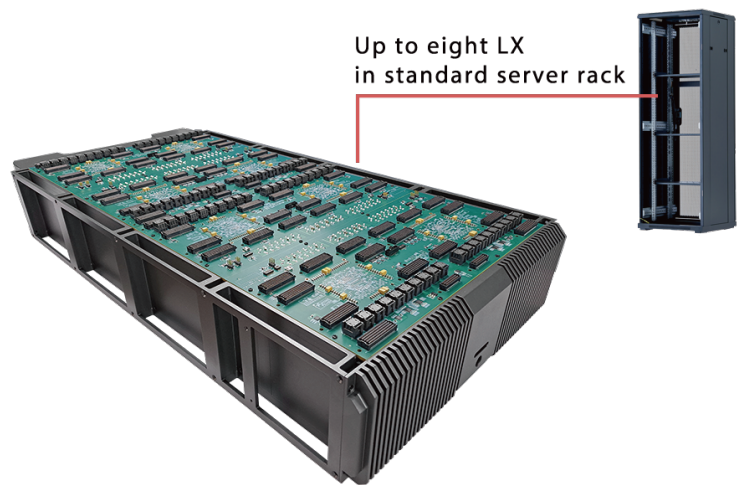


# Prodigy™ LX1 Logic Matrix

The Prodigy™ LX1 Logic Matrix is a high-density FPGA prototyping platform architected from the ground up to meet today's needs for both large design scaling and performance. Optimized for space and connectivity, LX1 is designed for multi-system expansion to support bills of ASIC gate capacity. LX1 is the ideal solution to address the ever-increasing complexity AND performance requirements found in large scale SoC designs for applications such as 5G, datacenter, AI/ML, and autonomous driving.

## Highlights

- Industry leading density and capacity - up to 1.92 billion ASIC gates in single standard server rack
- Hierarchical connectivity to support flexible topology and hyperscale design at prototyping performance
- Highly modular design to simplify deployment, maintenance, and expansion in via standard server racks
- Multi-usages: early software development, full system integration, high performance regression



## Features

### Large Capacity & Scalability

- LX1 available in 2, 4, 6, or 8 Xilinx VU440 FPGA configuration offering up to
  - 44.32M System Logic Cells
  - 708.8Mb of internal memory
  - 23,040 DSP Slice
- House up to 8 LX1 or 64 FPGAs in single standard server rack
- Interconnect multiple server racks for large scale deployment
- Future upgrade made easy - same physical dimension as LX2

### Flexible Topology & Hierarchical Connectivity

- Advanced Clock Management
  - 12 global clock inputs, 3 global clock outputs and 4 global resets
  - Dedicated global control module to synchronize clocks & resets across multiple systems
- Hierarchical Connectivity using 9,984 GPIO & 384 GTH transceivers
  - ShortBridge: high throughput connectivity between neighboring FPGAs
  - SysLink: high throughput cable for local and neighboring system connectivity
  - TransLink: long distance links between FPGAs with SerDes over copper or optical cables

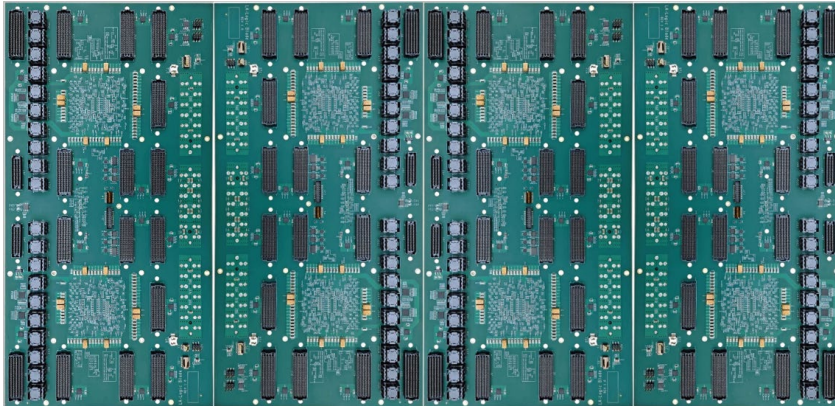
## Features

### High Reliability

- Redundant hot pluggable power supplies keep the system always online
- Professional air duct & heat pipe design
- Screw-locked high speed I/O connectors

### I/O Architecture

- 64 Prodigy Connectors each supports 144 single-ended / 72 LVDS pairs
- I/O voltage can be adjusted to 1.0V ~ 1.8V
- 80 Mini-SAS connectors each supports 4 GTH transceivers and 8 GPIOs
- 8 PGT connectors each supports 8 GTH transceivers and 16 GPIOs



### Configuration Table

	LX1-P1	LX1-P2	LX1-P3	LX1-P4
<b>FPGA Count</b>	2	4	6	8
<b>System Logic Cell (K)</b>	11,080	22,160	33,240	44,320
<b>Estimated ASIC Gates (M)</b>	60	120	180	240
<b>FPGA Memory (Mb)</b>	177.2	354.4	531.6	708.8
<b>DSP Slices</b>	5760	11520	17280	23040
<b>External User I/Os</b>	2496	4992	7488	9984
<b>GTH Transceivers</b>	96	192	288	384
<b>Prodigy Connectors</b>	16	32	48	64
<b>PGT Connectors</b>	2	4	6	8
<b>Mini-SAS Connectors</b>	20	40	60	80