

# Prodigy™ Cloud Cube 32

## Enterprise-class, FPGA-based prototyping system

### Highlights

- Up to 32 FPGAs in a chassis with power, cooling and remote control capabilities
- Maximum configuration flexibility by using a mixture of Single, Dual or Quad Prodigy Logic Modules
- System prototyping friendly by using S2C's 80+ off-the-shelf Prodigy Prototype Ready™ daughter cards
- Up to 16 users can simultaneously use different Prodigy Logic Modules in a Cloud Cube



Prodigy™ Cloud Cube 32

S2C's Prodigy Cloud Cube 32 is an enterprise-class, FPGA-based prototyping system that supports up to 32 FPGAs, using a combination of S2C's Quad, Dual or Single Prodigy Logic Modules. The Cloud Cube 32 provides engineering teams with a Complete Prototyping Platform that operates at any functional design stage and with any design size. Different designs or multiple instances of the same design can run concurrently in Cloud Cube. S2C's Prodigy Player Pro™ Runtime Software is included for controlling and monitoring both the devices in the Cloud Cube and the Cloud Cube 32 itself.

## Features

### Large Capacity & Scalable

- Up to 32 FPGAs can be installed using Quad, Dual or Single Prodigy Logic Modules
- Flexible Interconnections among Prodigy Logic Modules using interconnection modules or cables
- Up to 640 million ASIC gates with 32 Virtex-7 2000Ts (sold separately)
- Up to 1.4 billion ASIC gates with 32 Virtex-UltraScale 440s (sold separately)

### Multi-User Support

- 16 users can simultaneously use different Prodigy Logic Modules in a Cloud Cube
- Each Prodigy Logic Module is remotely accessible through Ethernet
  - Power on/off/recycle
  - FPGA download
  - Programmable clock and reset generation
  - Virtual LED, push buttons and switches
- 16 independent PCIe fast data ports for data communication between host and Cloud Cube

## Features

### System Control & Monitoring

- Auto recognition of Prodigy Logic Modules installed in the Cloud Cube
- Auto detection of interconnection/cable setup between Logic Modules in the Cloud Cube
- Monitor all Logic Modules in the Cloud Cube
  - Power status
  - I/O Voltages, Currents and Temperatures
  - IP address
- 6 global clock sources to all Logic Modules with less than 200ps skew and can be selected from
  - 6 programmable clock sources (0.2 ~ 700MHz)
  - 3 internally generated clocks from any FPGA
- 3 global resets to all Logic Modules from push buttons or software remotely
- Self-tests to isolate design issues from hardware or connection issues conveniently

### Humanized Design for Ease-of-Use

- Unique tray design for easily mounting Logic Modules & daughter cards
- Transparent and removable windows allow easy access & monitoring
- Flexible cable connections between slots on both sides
- Direct access to each Logic Module or access through a network switch
- Front and rear fan design to maximize cooling

## Abundant add-on features

### Prodigy Player Pro - Partition

Player Pro Partition software supports an integrated GUI environment to guide all compile steps from importing designs, setting up probes, partitioning designs (including LVDS pin-multiplexing insertion) and running P&R.

### Prodigy Debug Module

Debug Module provides the capability of concurrent debug of up to 32 FPGAs in a single logic analyzer in Cloud Cube. 16GB of onboard DDR3 memory offers a very deep capture depth, and waveforms are sent to the host computer for analysis via Gigabit Ethernet.

### Prodigy ProtoBridge AXI

ProtoBridge AXI links the system-level simulation environment to the FPGA-based prototyping environment through the widely-adopted AXI-4 bus protocol. ProtoBridge AXI is run in a Cloud Cube through any of the 16 Fast PCIe data ports.

### Prodigy Neuro™

Neuro software provides administrative functionality to remotely manage multiple Cloud Cubes and/or Logic Modules in geographically dispersed locations and in use by globally distributed design teams.

## Prodigy™ Cloud Cube 32



Front Side



Back Side



Side Door with Tray Design