S8-40 Prodigy Logic System

Better Performance & Higher Bandwidth Prototyping System

S8-40 Prodigy Logic System is the 8th generation of S2C's prototyping system, it delivers industry-leading performance and bandwidth to accelerate software development, SoC verification, system validation, and hardware regressions.

S8-40 Prodigy Logic System leverages the latest AMD device and the use of high-performance I/O connectors to provide the highest performance and the most scalability for modern VLSI SoC designs. Together with the newest compile, runtime, and debug software suits, allow users to quickly bring up the prototype and improve the verification productivity.

Highlights

- Delivers up to 40 million equivalent ASIC gates
- Flexible and extensible I/O architecture

  Higher performance benefits the innovative verification
- Enhanced toolchains for quick system bring-up
- Rich portfolio of Prototype Ready Kits

Features

Large Capacity & Scalability

- 7,352K System Logic Cells, 891Mb of Internal Memory, and 14,352 DSP Slices
- Multiple systems can be connected to achieve even larger capacities
- Compatible with AMD FPGA device

High Performance

- Signals to connectors are length matched
- High-speed GTM transceivers can run up to 56Gbps
- PCIe Gen5 running up to 32Gbps

High Reliability

- Screw-lock design to high-speed I/O connectors
- Self-test program to ease diagnosis of potential connectivity issues
- Real-time monitoring of voltage and temperature
- Automatic shutdown upon detection of over-current, over-voltage or over-temperature
- On-board battery charging circuit to ease bin file encryption (battery not included)

Features

Flexible I/Os

- 486 XPIOs on 9 Prodigy+ connectors
- 72 XPIOs and 24 GTMs on one FMC+ connector
- 112 GTMs on 28 MCIO connectors
- 16 GTYPs on 4 PGT+ connectors and 8 GTYPs on a PCIe slot
- I/O voltages can be adjusted from 1.0V to 1.8V

Advanced Clock Architecture

- 6 global clocks to be selected from
  - 6 internal programmable clocks (0.2 ~ 350MHz)
  - 6 external clocks sources
- 6 feedback clock outputs per FPGA
- 3 global resets to be selected from:
  - 3 internal global reset sources
  - 3 external global reset sources

Ease-of-Use

- Prodigy Player Pro - RunTime enables:
  - Multiple configurations, including Ethernet, USB, JTAG, and micro SD card
  - Real-time prototype monitoring, such as voltage, current and temperature monitoring, daughter card, and cable auto-detection
  - System management utility, includes Virtual I/O, Virtual UART, and NTbus to access the Regs/RAMs of user designs
  - Comprehensive hardware self-test to cover the I/Os and clocks diagnosis
- Optional Prodigy Player Pro – CompileTime, an integrated compile engine to automate the RTL to bitstream implementation
- Optional Prodigy Player Pro - DebugTime for the concurrent deep trace debugging of multiple FPGAs
- Compatible with S2C's off-the-shelf pre-tested daughter cards

System Specification

S8-40	Specifications
No. of FPGAs	1
Capacity per system	Up to 40M ASIC gates (Design dependent)
I/O Connectors	• 9x Prodigy+ (Each includes 54 XPIO signals, and can be configured as single-ended or LVDS) • 4x PGT+ (Each includes 6 XPIO and 4 GTYP signals) • 1x FMC+ (Each includes 72 XPIO and 24 GTM signals) • 28x MCIO (8 connector includes 8 XPIO and 4 GTM signals, and 20 connector includes only 4 GTM signals)
Clocks	6 global clocks, 3 global resets, and 6 feedback clocks
Configuration	JTAG, USB 2.0, Ethernet, SD Card
Max Power Consumption	250W
Dimensions	280mm x 130mm x 400mm (W x H x D)
Weight	9 kg