S7-19PD Prodigy™ Logic System

The S7-19PD Prodigy™ Logic System is a high-performance, modular and scalable prototyping solution, which is creatively designed to build the components of FPGA modules, power control module, and power supply into a compact and all-in-one system, for achieving maximum flexibility, durability and portability. The S7-19PD is based on Xilinx's Virtex UltraScale+ XCVU19P FPGA and provides abundant high speed I/Os and gigabit transceivers for pheriperal and interconnection use. The S7-19PD provides an ideal FPGA design prototyping platform in artificial intelligence, machine learning, 5G and GPU.

The S7-19PD Prodigy™ Logic System is part of the Prodigy Complete Prototyping Solutions, which consists of industry-leading design partition, debug solutions and remote capabilities that ensures users FPGA-based prototype comes up quickly. Users also have access to a rich portfolio of Prototype Ready IP in the form of plug-play daughter cards to quickly build prototyping targets.

Highlights

- Delivers up to 98M equivalent ASIC gates
- 3,182 high-performance I/Os for peripheral expansions & multi-system connectivity
- 88 high-speed transceivers at 16Gbps
- 4 on-board DDR4 SODIMMs at up to 2,400Mbps totaling 64GB
- Compatible with over 90 Prototype Ready IPs

Features

Large Capacity & Scalability

- 17.88M system logic cells and 331.8Mb internal memory
- 7,680 DSP slices
- Four on-board DDR4 SO-DIMM sockets can hold up to 72-bit 16GB DDR4 in each socket
- Multiple Logic Systems can be conveniently connected together to expand capacity

Flexible & Powerful I/Os

- 2,304 I/O pins and 56 high-speed transceivers through 16 Prodigy connectors
- 32 high-speed transceivers and 64 GPIOs through 4 PGT I/O connectors
- I/O voltage can be adjusted between 1.2V/1.35V/1.5V/ 1.8V through RunTime software in GUI
- 274 fixed inter-FPGA connections between F1 and F2

High Reliability

- Screw-lock design to high-speed I/O connectors
- Self-Tests - Isolate design issues from board issues conveniently with a software GUI
- Monitoring of on-board voltage, current and temperature with a software GUI; automatic shut-down upon detection of overcurrent, overvoltage or overtemperatures

High Performance

- 88 high-speed transceivers can run up to 16Gbps
- On-board support of DDR4 memory can run up to 2,400Mb/s
- Demanding length matched and impedance controlled
- Up to 200W power for each FPGA

Features

Adanced Clock Management

Single-System Mode

- 8 global clocks to be selected from
  - 8 programmable clock sources (0.2 ~ 350MHz)
  - 5 pairs of external clocks through MMCX connectors
  - 1 OSC socket
- 3 feedback clock outputs through 3 pairs of MMCX connectors
- 3 global resets to be selected from
  - 3 from on-board pushbuttons
  - 3 from Clock Module Type D
  - 3 from RunTime software in GUI

Multi-System Mode

- 8 global clocks to be selected from
  - 8 internal programmable clock sources (0.2 ~ 350MHz)
  - 6 external clock sources
- 3 feedback clocks can be output to global clock sources
- 3 global reset sources

Ease-of-Use

- Multiple FPGA configuration options through Ethernet port, USB port, JTAG and Micro SD card
- Remote power on/off/recycle through Ethernet
- Auto detection of daughter cards and cables
- Virtual SWs & LEDs for simple tasks such as changing a setting or indicating a condition remotely
- Virtual UART for firmware debugging
- User Test Area – LEDs, pushbuttons, switches and pin headers for testing and debugging
- On-board battery charging circuit makes FPGA bin file encryption easy (battery not included)
- Optional ProtoBridge™ AXI software to co-model with software/simulation models at the transaction-level
- Optional Prodigy Multi-Debug Module (MDM) Pro for the concurrent deep trace debugging of multiple FPGAs
- Compatible with S2C's off-the-shelf pre-tested daughter boards

I/O Architecture