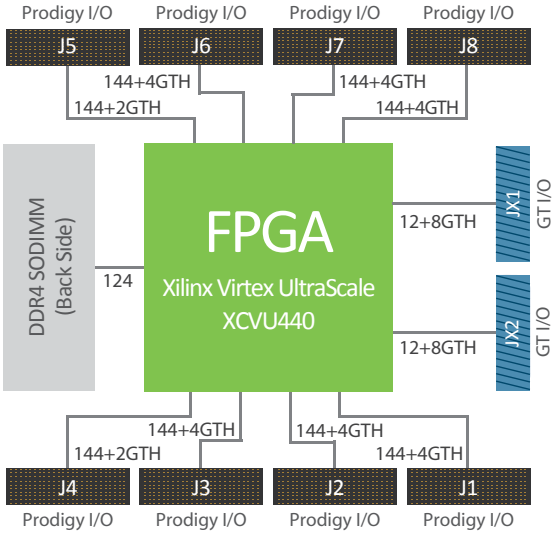
Single VU440 Prodigy™ Logic Module

The Single VU440 Prodigy Logic Module is the industry's smallest form-factor, all-purpose, stand-alone prototyping system based on Xilinx's Virtex UltraScale XCVU440 FPGA. The system has 1,176 general purpose I/Os and 44 GTH transceivers on 10 high-speed connectors, and users have access to S2C's 80+ daughter cards to quickly build prototype targets. Utilizing S2C 6th generation technology, users can perform an array of runtime features remotely through both Ethernet and USB. Up to 16 Single VU Logic Modules can be configured in a Cloud Cube™ to support a large-scale SoC/ASIC and to be shared among multiple users.

Highlights

- Small form factor (260 × 170mm)
- 2x density & 20% more user I/Os compared to V7 series
- Higher speed – DDR4 and built-in PCIe3 support
- Fully scalable – standalone and Cloud Cube mode
- Automatic daughter card recognition
- Abundant add-on features



Single VU440 Prodigy Logic Module I/O Architecture

Features

Large Capacity & Scalable

- 5.54M System Logic Cells and 88.6Mb of internal memory
- On-board DDR4 SO-DIMM socket supports up to 8GB memory
- Small form-factor (260mm x 170mm)
- Multiple Logic Modules can be conveniently connected together to expand capacity by interconnection modules or cables
- Up to 16 Single VU Logic Modules can be configured in a Cloud Cube

Flexible & Powerful I/Os

- 1,152 I/O pins through 8 Prodigy Connectors
- I/O voltage can be adjusted to 1.2V, 1.35V, 1.5V or 1.8V through runtime software in GUI with 4 status LEDs on-board to indicate I/O voltage
- 16 Gigabit transceivers and 24 GPIOs through 2 high-speed differential I/O connectors can run up to 10Gbps

Advanced Clock Management

Standalone Mode

- 6 global clocks to be selected from
  - 6 programmable clock sources (0.2-700MHz)
  - 5 pairs of external clocks through MMCX connectors
  - 1 OSC socket
- 3 design clock outputs
  - through 3 pairs of MMCX connectors

Cloud Cube Mode

- 6 global clocks to be selected from
  - 6 local programmable clock sources (0.2-700MHz)
  - 6 Cloud Cube global clock resources
- 3 feedback clocks
  - Internally generated clocks can be output to Cloud Cube global clock sources

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Features

High Performance

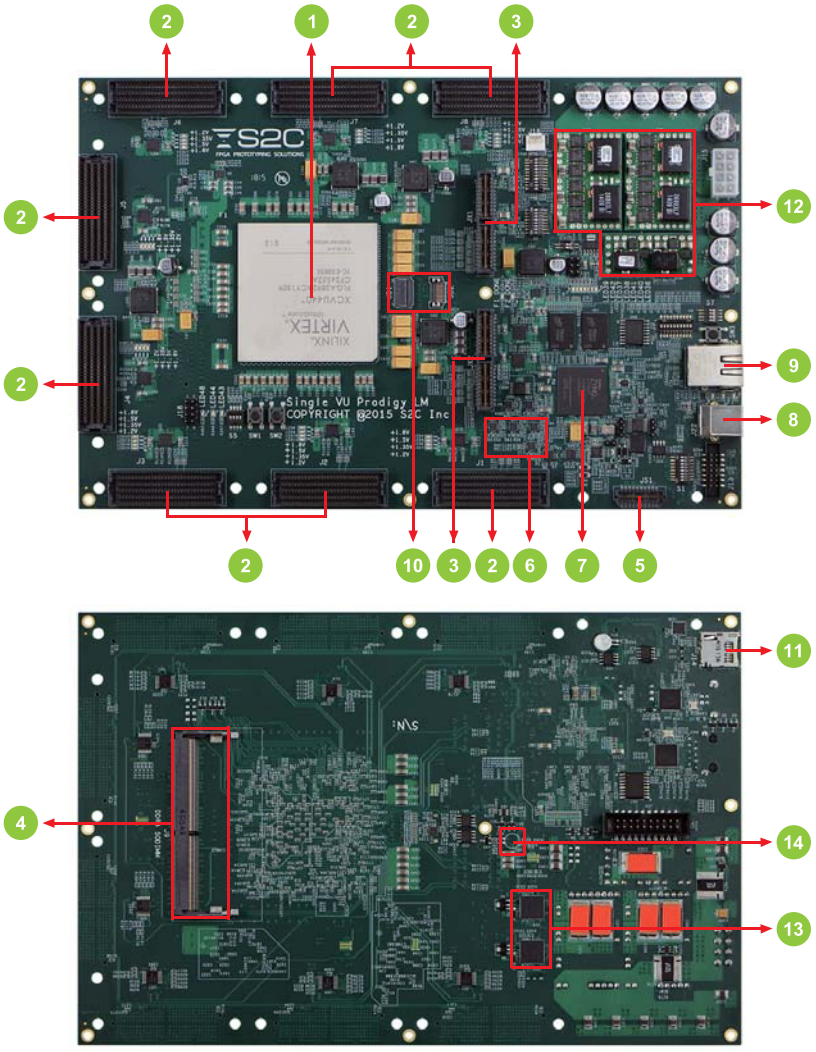
- Up to 100W of power for an FPGA
- Equal trace length for I/Os from same I/O connector
- On-board support of high-speed DDR4 memory

High Reliability

- Screw-lock design to 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 over-current, over-voltage or over-temperature

Ease-of-Use

- Auto detection of daughter card or cable
- On-board battery charging circuit makes FPGA bin file encryption easy
- Compatible with S2C's off-the-shelf pre-tested daughter boards
- Multiple FPGA configuration options through Ethernet port, USB port, JTAG and micro SD card
- Virtual SWs & LEDs for simple tasks such as changing a setting or indicating a condition remotely
- Optional S2C design implementation software
- Optional S2C Prodigy Debug Module for multi-FPGA deep-trace debug through gigabit transceivers
- Optional ProtoBridge™ AXI software to co-model with software/simulation models in transaction-level



1. Xilinx Virtex UltraScale 440 FPGA
2. Prodigy I/O Connector
3. GT I/O Connector
4. DDR4 SO-DIMM Socket
5. System Control Port
6. Advanced Clock Management
7. LM Controller
8. USB Port
9. Gigabit Ethernet Port
10. Debug Module Port
11. Micro SD Card
12. Power Module
13. Smart Power Monitors
14. Battery for Encryption

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