

# uno V7 Prototyping System



## Product Summary

The proFPGA uno V7 system is a complete and modular FPGA solution, which fulfills highest needs in the area of FPGA based Prototyping. It addresses customers who need a cost efficient and flexible high performance Prototyping solution for IP verification and early software development and real time system verification.

The innovative system concept and technologies offer highest flexibility and reuseability for several projects, which guarantees the best return on invest.

## Highest Flexibility

The system architecture is based on an modular system concept. The FPGAs are assembled on dedicated FPGA modules, which will be plugged on the proFPGA uno motherboard. This offers the highest flexibility to use for example different FPGA types. Besides the user has nearly 100% access to all available I/Os of the FPGA, which gives him maximum freedom regarding to plug for example extension boards or user specific application boards to the system. This way the prototyping system can be adapted the best way to meet the demands of any user design. Furthermore the system offers a total of 8 extension sites on the top and bottom site for standard proFPGA or user specific extension boards like DDR-3 memory, high performance interface, or interconnection boards.

## Maximum Performance

The well designed boards of the proFPGA system are optimized and trimmed to guarantee best signal integrity to archive highest performance. The high speed boards together with the specific high speed connectors allow an maximum point to point speed of up to 1.8 Gbps over the standard FPGA I/O and up to 12.5 Gbps over the MGT of the FPGA. This fast performance combined with the high interconnection flexibility offer the designer an maximum speed of his design running in the proFPGA system.

## Biggest Capacity

Equipped with for example one Xilinx Virtex 7 XCV2000T FPGA modules, the proFPGA uno system can handle up to 12 M ASIC gates.

## Extensive User Comfort

The proFPGA prototyping systems provide an extensive set of features and tools, like remote system configuration, integrated self and performance test, automatic board detection, automatic I/O voltage programming, system scan and safety mechanism, which extraordinarily simplifies the usage of the FPGA based system.



## Key Features

- ✦ Up to 12 M ASIC gates capacity
- ✦ Up to 1084 available user I/O
- ✦ Up to 36 dedicated high speed serial I/O transceivers
- ✦ Up to 8 individually adjustable voltage regions
- ✦ Up to 1.8 Gbps/12.5 Gbps point to point speed
- ✦ proFPGA FPGA Mixing Technology (FMT)
- ✦ Smart Stacking Technology (SST)
- ✦ High performance host interface (DMBI)
- ✦ proFPGA Builder Software

## Innovative Technologies



### Smart Stacking Technology

- ✦ Board detection when boards are plugged
- ✦ Automatic and right I/O voltage setting and programming with conflict detection
- ✦ Integrated interconnection self- and performance test
- ✦ Smart I/O resource management. No I/O resources get lost or get blocked by connectors



### FPGA Mixing Technology

- ✦ Easy plugging and unplugging of FPGA modules on motherboards
- ✦ Various FPGAs from different vendors can be mixed
- ✦ Automatic scanning and detection of FPGA modules, when plugged
- ✦ Different FPGA configurations are controlled by proFPGA Messenger



### Device Message Box Interface

- ✦ High speed, low latency data exchange system
- ✦ Enables various use modes like remote system configuration and monitoring, debugging, application level programming, debugging and co-simulation
- ✦ Runs over USB or Ethernet

profpga uno V7 Specification	
Available FPGA types	- Xilinx Virtex XC7V2000T, XC7VX690T, XC7V585T or XC7VX330
Capacity	- Up to 12 M ASIC gates (XC7V2000T FPGA)
FPGA-internal memory	- Up to 52,920 kbits on one board (XC7VX690T FPGA)
Signaling rate	- Up to 1.8 Gbps (standard I/O)/ 12.5 Gbps (MGT)
Extension sites	- Up to 8 Extension sites with High Performance (up to 21 Gbps) connectors
I/O resources	- Up to 1084 signals for I/O (XC7V2000T FPGA) - Up to 738 signals for I/O (XC7VX690T FPGA) - Up to 738 signals for I/O (XC7V585T FPGA) - Up to 540 signals for I/O (XC7VX330T FPGA)
High speed I/O transceivers	- Up to 16 MGTS (XC7V2000T FPGA) - Up to 32 MGTS (XC7VX690T FPGA) - Up to 36 MGTS (XC7V585T FPGA) - Up to 28 MGTS (XC7VX330T FPGA)
Available interface boards	- USB 3.0, PCIe Gen2/Gen3, MIPI, DVI, DDR3 memory, Gb Ethernet, etc.
Voltage regions	- Up to 8 individually adjustable voltage regions per FPGA Module - Stepless from 0.6V up 3.3V depending on used FPGA type - Automated detection of daughter card and adjustment of right voltage
Clocking	- 8 fixed clocks - 2 quartz as clock references
Configuration	- With host software via Ethernet, USB 2.0 or standalone over USB stick
Data exchange	- On board DMBI (Device Message Box Interface) - Data exchange rate: - Ethernet - USB
Power	External (optional) ATX Power Supply (12 V, 24 - 35 A output)
Dimensions	- 5.91" x 0.95" x 5.91" / 150 mm x 24 mm x 150 mm (width x height x depth) - 0.5 kg weight

### profpga uno V7 2000T I/O and Clock Architecture

