

# Zynq™ UltraScale+™ ZU11EG FPGA Module

## Product Summary

The proFPGA product family is a complete, scalable, and modular multi FPGA Prototyping solution, which fulfills highest needs in the area of FPGA based Prototyping. Part of this modular and flexible system concept is the proFPGA Zynq™ UltraScale™+ ZU11EG FPGA module, which can be easily mounted on the proFPGA uno, duo or quad motherboard and mixed together with various other proFPGA FPGA modules like the proFPGA Virtex® UltraScale™ 440 FPGA module. The proFPGA Zynq™ UltraScale™+ ZU11EG FPGA module addresses customers who require a complete and powerful embedded processing platform for high performance SoC Prototyping, IP verification and early software development. The innovative system concept and technologies offer highest flexibility and reuseability for several projects, which guarantees the best return on invest.

## Complete Embedded Processing Platform

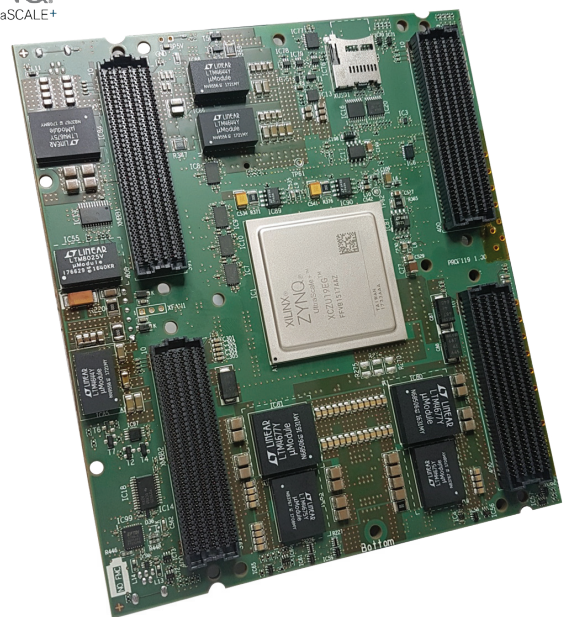
Equipped with a Xilinx Zynq™ UltraScale+™ ZU11EG FPGA which combines a user FPGA with two ARM Multi Core Processors (Embedded Quad-core ARM® Cortex™-A53 and Dual-core ARM® Cortex™-R5) and several on board interfaces like USB 3.0, Gigabit Ethernet, Display Port, SATA or CAN the board offers a complete embedded processing platform. Further the board offers already DDR4 memory via SODIMM slot and single QSPI flash memory.

## Usage of ARM Processor for SoC development

Most of today's SoC designs contain an ARM processor. Instead of implementing the ARM core into a FPGA and occupying important FPGA resources the user can take the proFPGA Zynq™ module which has already an embedded ARM processor with verified interfaces and memories. Further the FPGA module offers a direct ARM debug interface that you user can benefit and use the proven ARM debug environment in combination with the proFPGA prototyping system and can focus on the verification of his design.

## Highest Flexibility & System Speed

The FPGA module offers a total of 3 extension sites on the top and bottom side with a total of 378 free standard I/Os and 16 high speed serial transceivers for extending the board with standard proFPGA or user specific extension boards or to easily interconnect it to further proFPGA FPGA modules to extend the capacity. The well designed board is optimized and trimmed to guarantee best signal integrity to achieve highest performance and allow a maximum point to point speed of up to 1.2 Gbps over the standard FPGA I/O and up to 16 Gbps over the high speed serial transceivers of the FPGA.



## Key Features

- ✦ Xilinx Zynq™ UltraScale+™ ZU11EG FPGA
- ✦ Embedded Quad-core ARM® Cortex™-A53 and Dual-core ARM® Cortex™-R5
- ✦ 378 free user I/Os
- ✦ 16 dedicated high speed serial I/O transceivers
- ✦ Up to 4 individually adjustable voltage regions
- ✦ Various on board interfaces and memory like USB 3.0, Gigabit Ethernet, SATA, DDR4 and SPI Flash
- ✦ Works with proFPGA uno/duo/quad motherboard and can be mixed with other proFPGA FPGA modules

## 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
- Up to 3.5 Gbps data transfer rate
- Runs over USB, Ethernet or PCIe



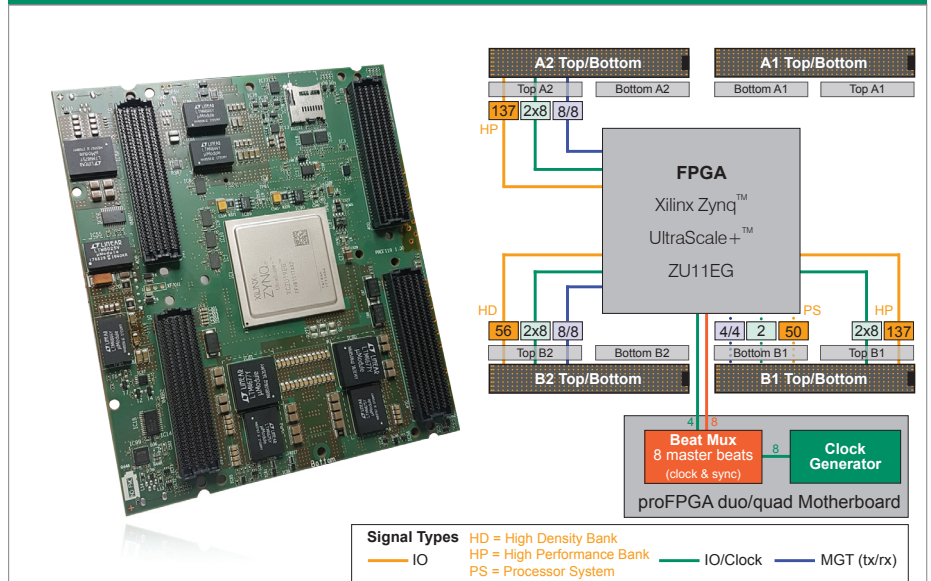
### Advanced Clock Management

- X- local clocks
- 8 global clock and sync signals per motherboard

## Zynq™ UltraScale+™ ZU11EG FPGA Module

profpga Zynq™ UltraScale+™ ZU11EG FPGA Module Specification	
FPGA type	- Xilinx Zynq™ UltraScale+™ ZU11EG
Capacity	- 3.5 Million ASIC gates
Processor Core	- Embedded Quad-core ARM® Cortex™ -A53 and Dual-core ARM® Cortex™ -R5
On Board Interfaces Processor System	- USB UART interface for debugging - USB 3.0 - Gigabit Ethernet - SDIO - CAN - Display Port - GPIO - I²C - PMU access - SATA
On Board Memories Processor System	- DDR4 memory via SO DIMM module - Single Quad SPI Flash Memory
Signaling rate	- Up to 1.2 Gbps (standard I/O)/ 12.5 Gbps (MGT)
Extension sites	- up to 5 extension sites with High Performance connectors
I/O resources	- 378 per FPGA module - 2 x 153 I/Os (High Density Bank) to 2 x top/1 x bottom extension sites - 1 x 72 I/Os (High Performance Bank) to top extension site - Single-ended or differential - 52 x dedicated I/Os to Processor System
High speed I/O transceivers	- 16 free user MGTs per FPGA module - 1 x 8 MGTs (up to 12.5 Gb/s) to top extension site A2 - 1 x 8 MGTs (up to 12.5 Gb/s) to top extension site B2 - 4 dedicated MGTs to Processor System
Available extension boards	- PCIe Gen1/Gen2/Gen3, MIPI, DVI, DDR3/DDR4/Flash/LP DDR4 memory, etc.
Voltage regions	- 4 individually adjustable voltage regions per FPGA Module - Stepless from 1.2V up 3.3V for HD IOs and 1.0. to 1.8 for HP IOs
Clocking over proFPGA duo/quad Motherboard	- 8 global clock and sync signal inputs per motherboard - X fully synchronous derived clocks with sync signals
Configuration	- JTAG interface - On Board SD memory card
System Requirements	Works with proFPGA uno, duo or quad motherboard and can be mixed with other proFPGA FPGA modules
Configuration	- Via Ethernet and USB or PCIe with proFPGA Builder Software
Order Code	- PROF-FM-XCZU11EG-1/PROF-FM-XCZU11EG-2 (speedgrade 1/2)
Dimensions	- 5.91" x 0.95" x 5.91" / 150 mm x 24 mm x 150 mm (width x height x depth) - 0.25 kg weight

### profpga Zynq™ UltraScale+™ ZU11EG I/O and Clock Architecture



PRO DESIGN Electronic GmbH  
Albert-Mayer-Str. 14 - 16  
83052 Bruckmühl, Germany

Phone: +49 (0) 8062-808-0  
FAX: +49 (0) 8062-808-404  
[profpga@prodesign-europe.com](mailto:profpga@prodesign-europe.com)

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