The Abdus Salam
International Centre
for Theoretical Physics

UDMA

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Overview

- Introduction
  - What and why?
- Hardware/Software architecture
  - Unified Model
  - UDMA instruction
  - LRA entity
  - Communication packet
- Single SoC-FPGA based system
  - Test Application

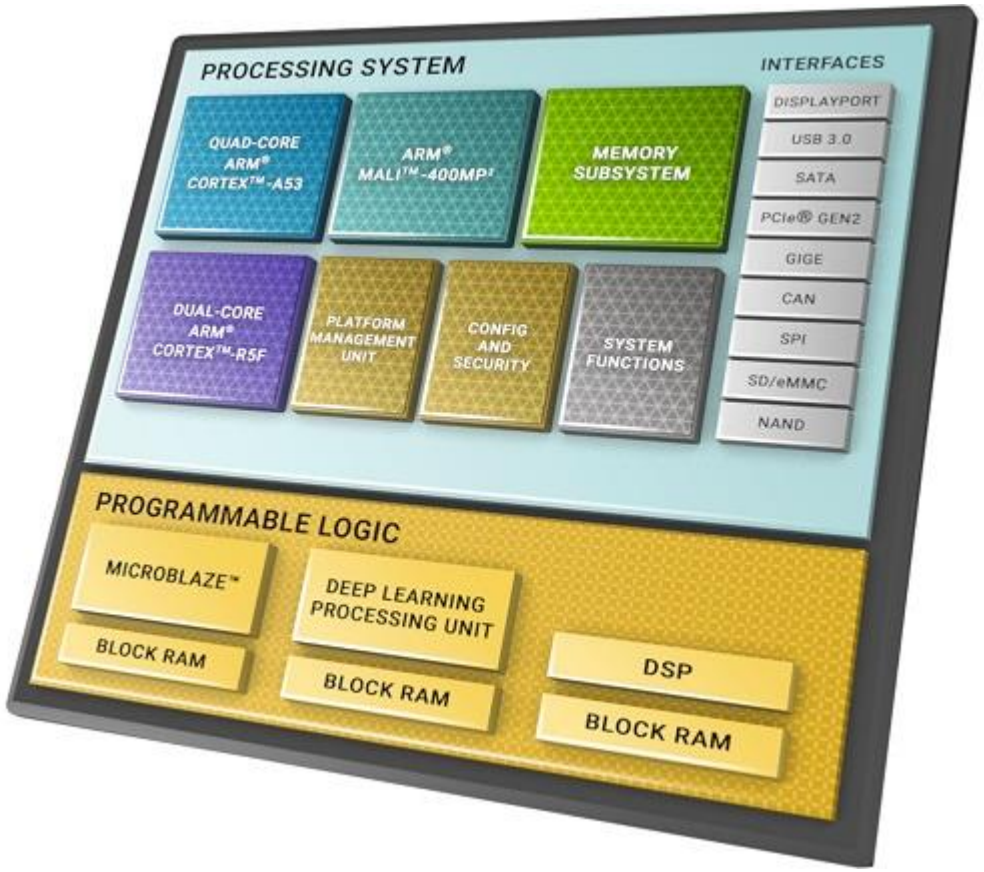
Introduction

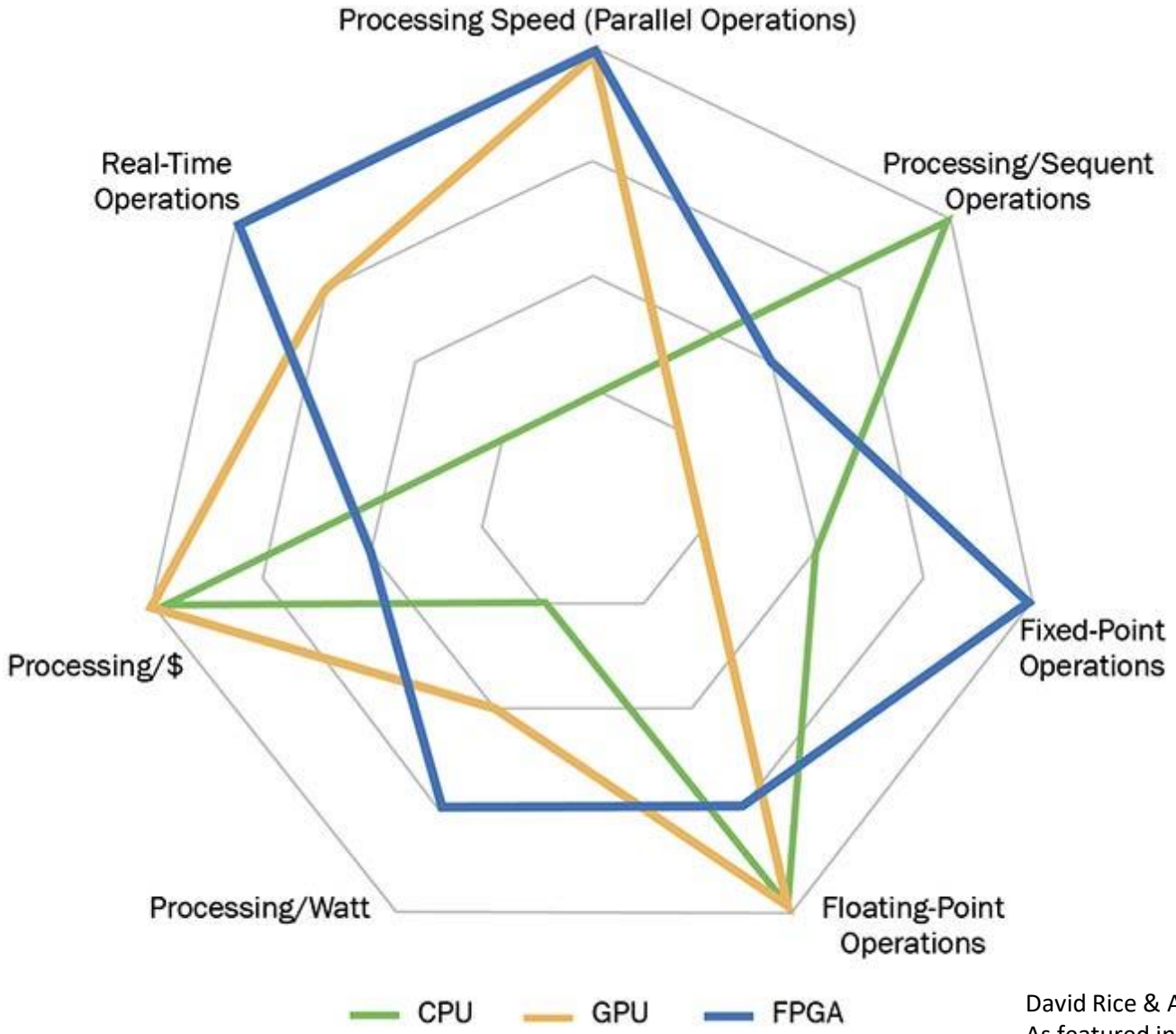
SoC-FPGA

- Multi-core processors
- DSPs
- FPGA fabric
- GPU

High level of complexity and integration

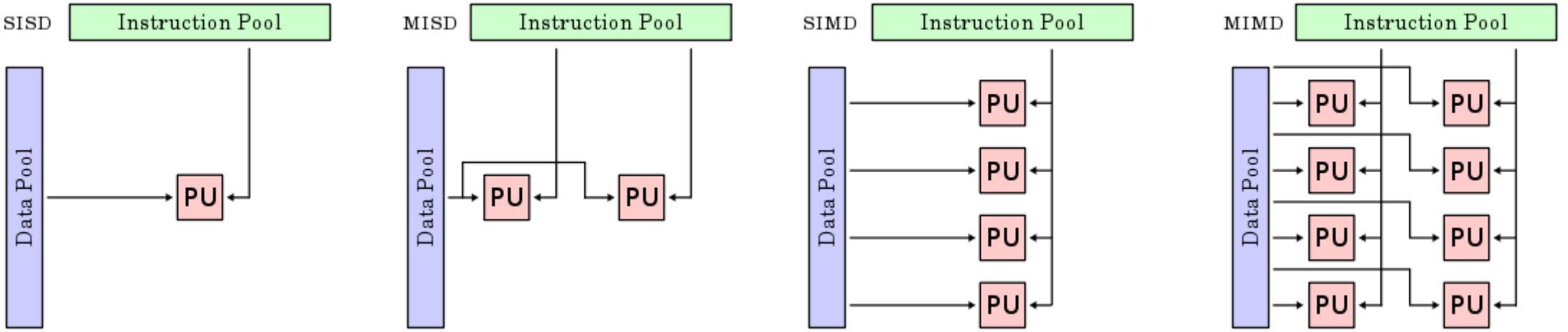
Great computational potential



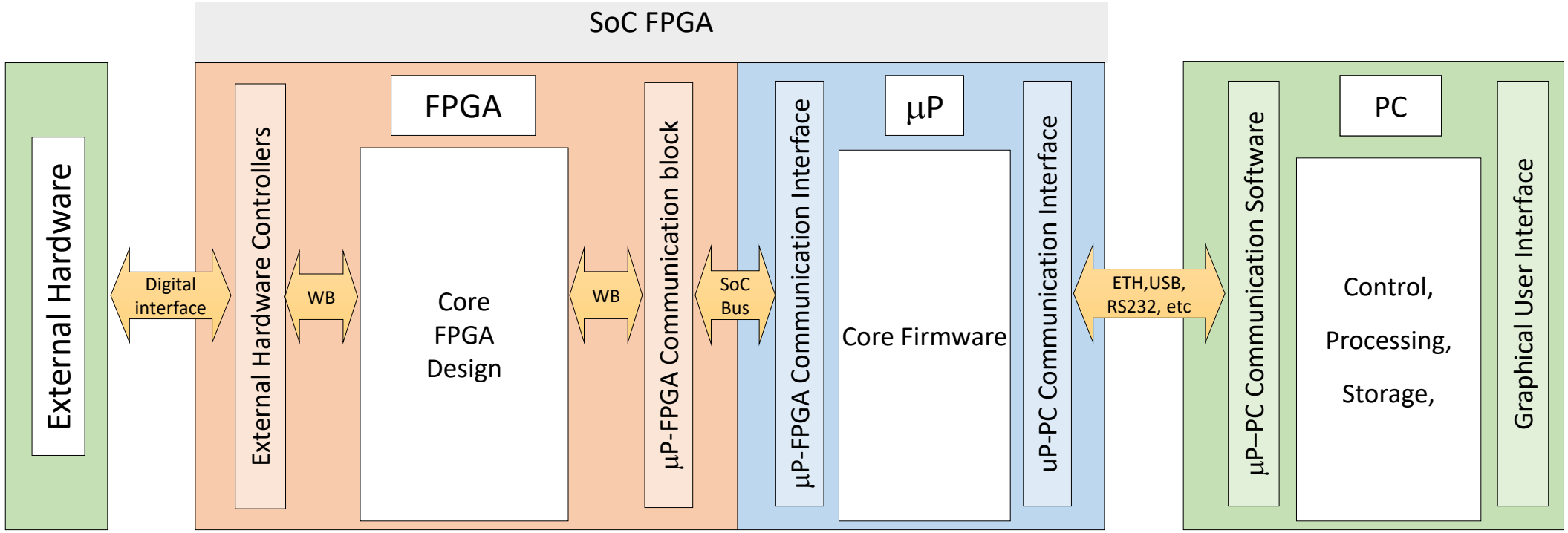


David Rice & Amber Thousand, Critical Link
As featured in the July 2019 issue of Photonics Spectra magazine.

Architecture Categorization



Unified Model



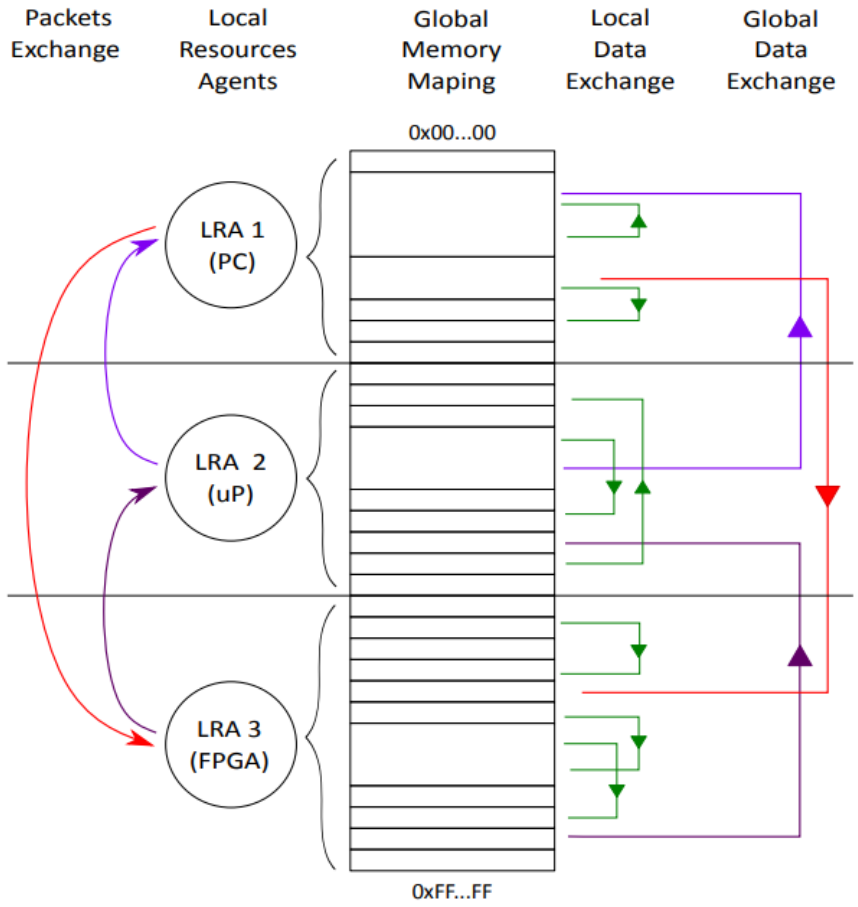
UDMA Instruction

- Describes the movement of data from one place to another of the global system

$$udma \ < source\ address > < destination\ address > \\ < src.inc. > < dst.\ inc > N$$

Local Resource Agent

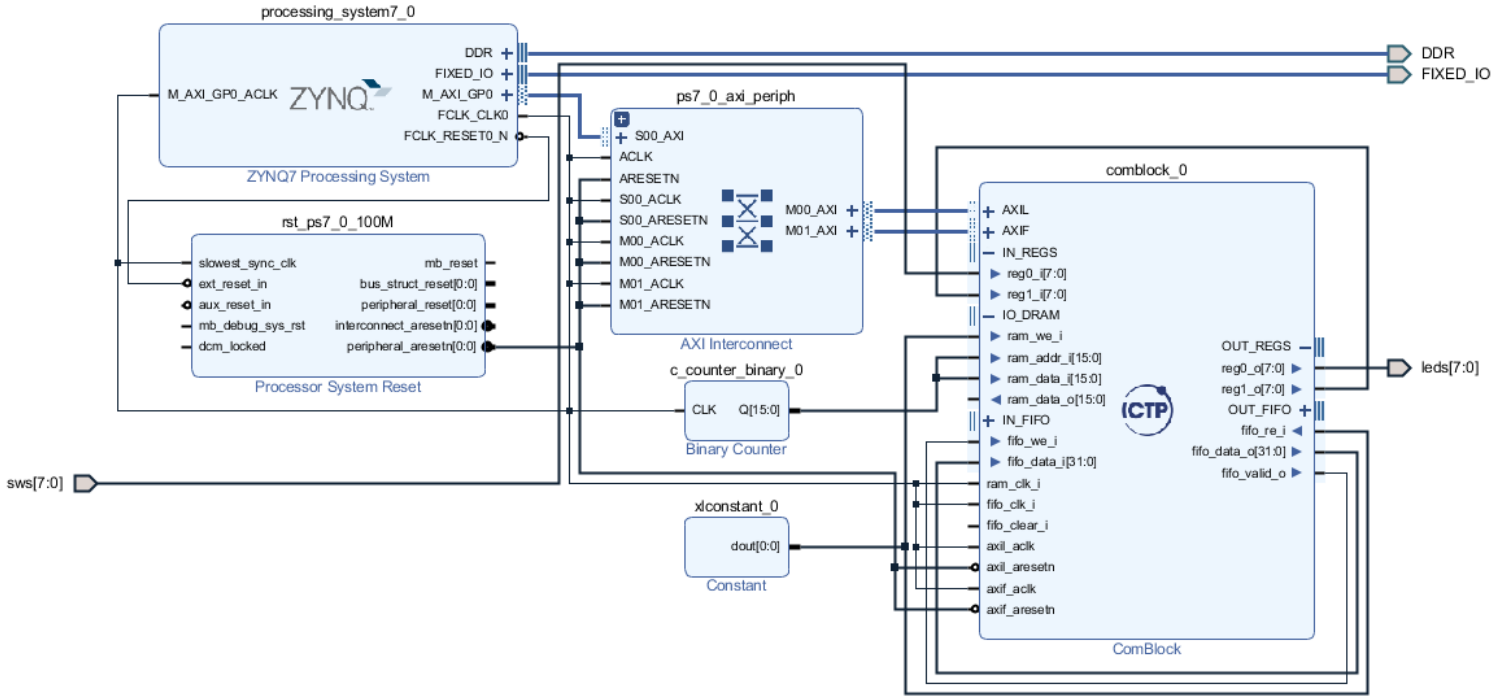
- Global memory map beyond a single device
- Direct and exclusive access to one memory domain
- Exchange data among them by means of packets



Test Application

```
 B. Valinoti, W. Florian - MLAB/ICTP 2021
This CLI application is the first edition of the UDMA on Cmd2.
Use -h or --help for more information.
>:
```

Writing data in the ComBlock from PC using Python UDMA CLI



Thanks for your attention

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