

MXP™ Matrix Processor

General Description

The VectorBlox MXP™ Matrix Processor™ is a scalable soft-core processor designed for FPGAs. It implements classic massively parallel vector processor algorithms traditionally used in scientific super-computers. In addition to 1D vectors, the MXP™ processor also operates on 2D and 3D matrices, increasing the application kernels it can enhance. Programming is purely done in C/C++, combining high-performance with easy programmability.

The MXP™ enhances performance of standard Altera Nios II processors by at least 1 to 2 orders of magnitude in many applications. It is optimized to fit into a standard FPGA as a plug-in IP block. Users write standard C programs augmented with a set of optimized MXP™ specific extensions. These are easy to learn and represent typical operations like vector-add or vector-multiply.

Benefits

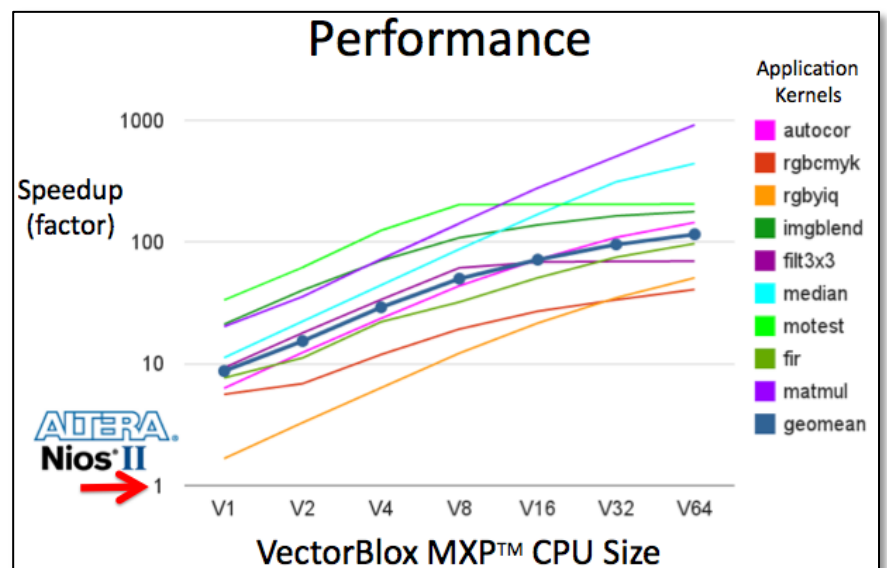
- Accelerates time to market
- Only need C/C++ programming skills – No RTL or HW skills required
- Decouples HW and SW design
- HW speeds delivered in software
- Up to 1000x enhancement to standard Nios II implementations

Key Features

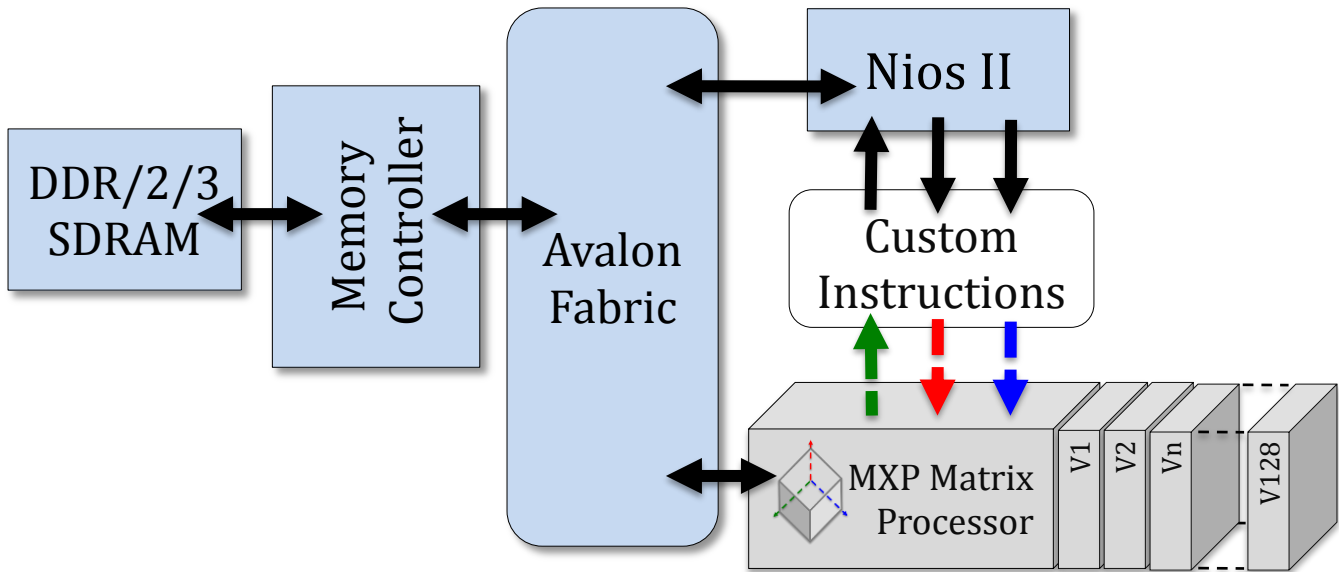
- Supports Altera Qsys integration tools
- Enhances standard Nios II processors in all FPGA families
- Scalable from V1 to V128 lanes
- Predesigned RTL logic description of the vector processor, available as a plug-in IP module
- C compiler with MXP™ extensions and libraries
- Optional simulator; run and debug MXP™ C programs on any computer system

Applications

- Machine Vision
- Imaging
- Smart Camera
- Industrial Control
- Financial
- Audio
- Video



Functional Description



Available Formats

MXP™ Matrix Processor™ is available in the following configurations for Altera FPGAs:

Description	Target FPGA	Fabric	Scalability
MXP-N-Fixed	Altera – Nios II	Custom Instructions + Avalon	Fixed size, e.g., V8
MXP-N-Configurable			Configurable size, e.g., V1 to V128

Deliverables

- Encrypted RTL
- Functional Simulator (optional)
- C Extensions and Libraries for MXP™
- User Documentation
- Sample Code

Contact Information

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