RAPID EVALUATION AND ACCELERATION
OF INTEL® QUICKPATH INTERCONNECT
FEATURES AND APPLICATIONS

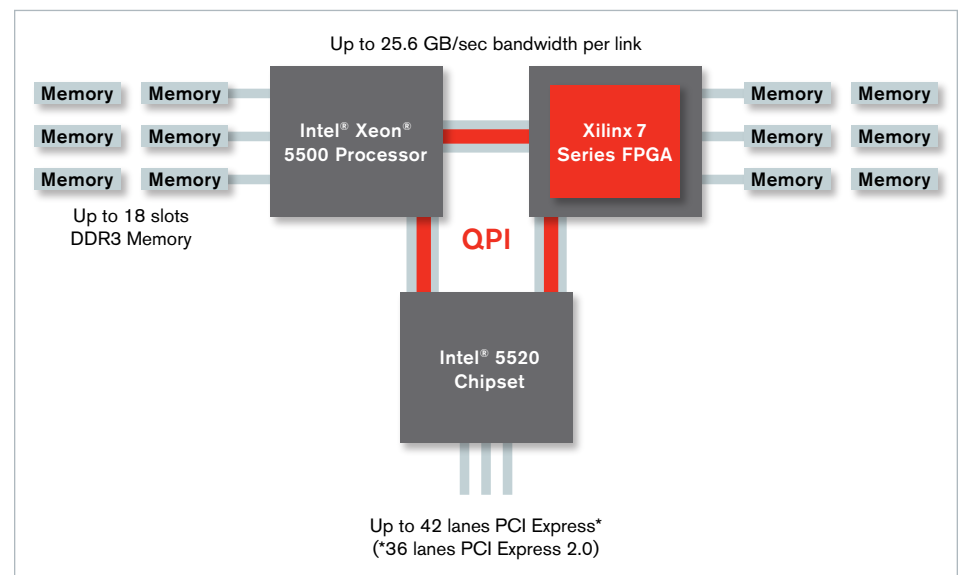# QUICKPATH INTERCONNECT IP: ENHANCING INTEL PROCESSORS AND ACCELERATING CRITICAL SERVER DATA PATHS

⟩ Xilinx Solution

- Accelerating development for high-speed FPGA-to-processor communications based on Intel® QuickPath Interconnect (QPI)

- Leveraging an Intel 32nm CPU and cache agent, with full-width (20 lanes) operation at 6.4Gbps per lane

- Example design, for rapid start-up, based on Xilinx® Virtex®-7 FPGA

- Application customization services and comprehensive designs available from Xilinx Design Services

The Intel QPI protocol provides a low-latency, high-bandwidth serial link for processor-to-processor communications. By leveraging the Xilinx QPI intellectual property (IP) core and the power of Xilinx 7-Series FPGAs, developers of next-generation data center servers and appliances can effectively:

- Accelerate application functions

- Design low-latency and high-bandwidth network interface cards (NICs) that introduce in-line I/O processing and network processing

- Expand PCI Express (PCIe) slots or double data rate (DDR)-3 memory with cost-effective, low-power FPGA connections, without requiring changes in PCIe boards or memory modules

- Speed the processing of large data sets with parallel processing and accelerated data transfers

CONCEPTUAL IN-SOCKET ACCELERATOR

Up to 25.6 GB/sec bandwidth per link

Intel® Xeon® 5500 Processor

Xilinx 7 Series FPGA

Up to 18 slots DDR3 Memory

QPI

Intel® 5520 Chipset

Up to 42 lanes PCI Express*
(*36 lanes PCI Express 2.0)

XILINX®

What's Included

QuickPath Interconnect IP end-user license, supporting:

- Intel QPI version 1.1
- Full width (20 lanes), at 6.4Gbps per lane
- User interface: 512 bits at 200MHz
- Cache agent only

Design, Schematics, and Documentation

- Example design
- Virtex-7 FPGA module and riser schematic, netlist, and bill of materials
- Query Language Processor (QPL) netlist (encrypted)
- Basic Input-Output System (BIOS) object code
- System Programming Language (SPL): Computer Standards and Interfaces (CSI) SPL/Application Adapter Layer (AAL) cache agent
- Hardware Setup Guide
- IP User Guide
- Bullet Copy-Regular Spacing Level 2

Xilinx Design Services

Xilinx customers can accelerate design productivity for QPI and other data center applications by taking advantage of engineering consulting and design services offered by Xilinx and its partners. Certified professionals can share years of FPGA experience and in-depth knowledge of the latest product families including the 7 series FPGAs and Zynq-7000 Extensible Processing Platforms (EPPs). Design services give customers a direct link to the Xilinx Data Center Group for advanced notice of upcoming Xilinx innovations and solutions that enable next-generation data centers.

Take the NEXT STEP

For a demonstration, contact your local Xilinx representative. For more information about the Xilinx offering, please visit: **www.xilinx.com**

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