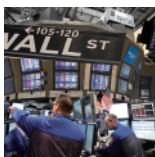# DE10-PRO Stratix® 10 GX/SX PCIe Acceleration Board
Essential Instrument of High Performance Systems

Introduction

Inspired by the demands of AI, Data Center, and High Performance Computing, Terasic's DE10-PRO is purpose-built for acceleration and high-speed connectivity applications to address the demands of the next-generation high-performance systems.

The board itself takes advantage of the latest Intel® Stratix® 10 to obtain speed and power breakthrough (with up to 70% lower power). Also, armed with 32GB DDR4 memory module running at over 150 Gbps, up to 15.754 GB/s data transfer via PCIe Gen 3 x16 edge between FPGA and host PC, and 4 on-board QSFP28 connectors, the board delivers more than 2X the performance of previous generation acceleration cards.

The DE10-PRO fully supports Intel Open VINO™ toolkit to provide optimal Computer Vision and Deep Learning solutions. Our clients' systems can achieve highest computing performance and lowest cost for their AI applications by leveraging the Stratix® 10 FPGA on DE10-PRO.

What You Can Do

- Data center acceleration
- Hardware security solutions and gateways
- NFV networking connection
- High frequency trading
- Missile guidance and avionics simulator
- AI and Deep Learning

OpenVINO™ and OpenCL™ Services

- Support Intel OpenVINO™ toolkit
- Support OpenCL™ (HPC and Networking) board support package (BSP)

∗ As Intel certified service provider for OpenCL services and development, Terasic also provides customized service to meet the exact needs of our clients.
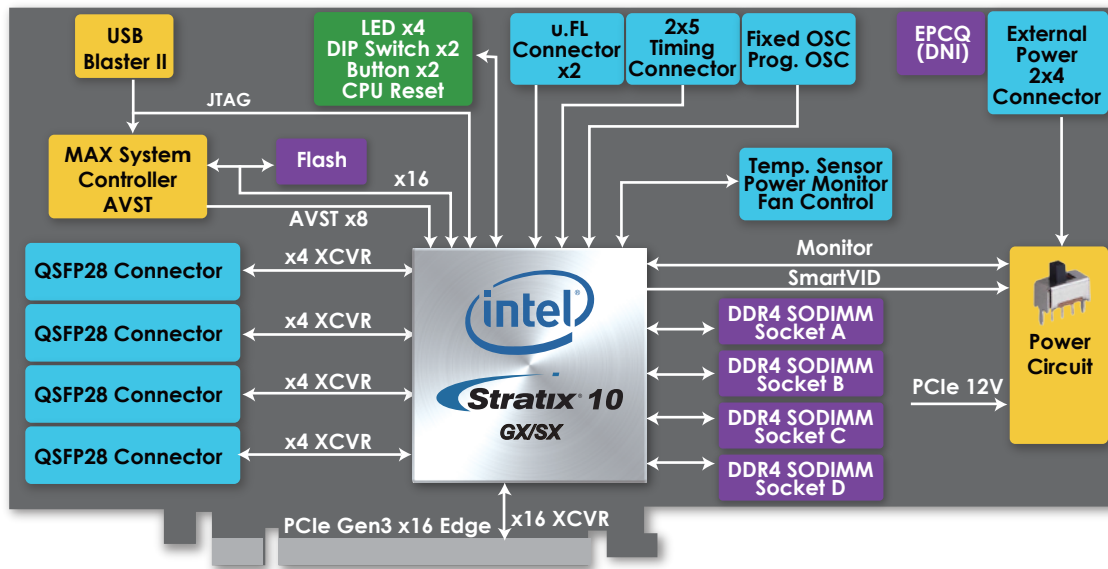
Customized Services

Hardware and Software Solution
- Terasic has a strong design expertise in FPGA hardware and software.

- Terasic creates FPGA-based products to meet our clients' specific requirements. We excel at delivering ready-to-use and highly optimized systems. Terasic rugged FPGA systems have been deployed in various extreme environments, such as Wall Street's zero-downtime data center and 5G base station in desert.

Consultancy Services
- At Terasic, we offer assistance to our clients in aspects such as porting, optimization and benchmarking of applications executed on Terasic FPGA Boards. Our support includes software upgrade and OpenCL design services.

Major Specs and Interfaces

- Stratix® 10 GX/SX FPGA. FPGA Fabric Speed Grade: -2/ XCVR Speed Grade : -1

- Full-height, 3/4-length form-factor package

- Allows ultra-low-latency, straight connections to 4 external 100G QSFP28 modules

- High-speed parallel Flash memory

- PCIe Gen3 x16

- With 2x5 timing expansion header for 1pps or other high precision clock inputs

- 4 independent banks of DDR4 SO-DIMM sockets with error correction code (ECC), up to 8GB@1200MHz for each socket (paired flexibly with Terasic's 576-Mbit QDR-II+ or 144-Mbit QDR-IV modules)

Cooling Options

- 2-slot Air Cooling System: Dual 60mm 5300 RPM fans with four heat pipes, Thermal resistance: 0.3 °C/W

- 1-slot Passive Cooling System: Thermal Resistance: 0.46 °C/W at 10 CFM air flow

Power and Thermals

- 180W TDP and 210W peak power
- 55°C TLA

More Information and Support

Intel DSN

DE10-Pro

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