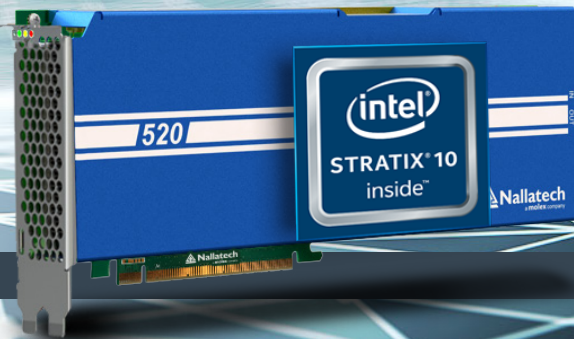# ::NEW PRODUCT

Nallatech 520C

Compute Acceleration Card

Introducing ground-breaking single precision floating point performance of up to 10 TFLOPS, the OpenCL-programmable 520C features an Intel Stratix 10 FPGA, along with four banks of DDR4 external memory.

- **Up to 10 TFLOPS of peak single precision performance**

- **25MBytes of L1 cache @ up to 94 TBytes/s peak bandwidth**

- **2X Core performance gains over Arria 10**

- **70% lower power consumption**

- **Highest density FPGA fabric**

The Nallatech 520C Compute Acceleration Card is an FPGA co-processor designed to deliver ultimate performance per watt for compute-intensive datacenter applications.

Designed to address a range of compute-intensive and latency-critical applications

- **Machine Learning**
- **Gene Sequencing**
- **Oil & Gas**
- **Video Transcoding**

# OpenCL-programmable FPGA co-processor for ultimate application performance

OpenCL

» Intel FPGA OpenCL Software Development Kit (SDK)
- Abstraction enables faster and higher level software development flow
- Emulate OpenCL application code on x86 platforms in seconds
- Push button flow generates FPGA executable, driver and API
- Add optimized HDL IP cores to OpenCL designs as libraries

» Hardware Description Language (HDL)
- Traditional VHDL/Verilog tool flow support
- Aimed at hardware-orientated customers
- Hand-code HDL for ultimate performance
- FPGA card designed to support standard Intel IP cores for Stratix 10
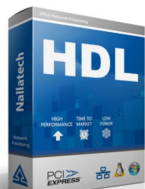
Nallatech
a **molex** company

Form Factor
» Full-height, double-width PCI Express card
» 4.376 x 10.5 inches (111 x 266.7 mm)

Host Interface
» 16-lane PCI-Express Gen 3.0
» Actual performance is host computer chipset and operating system dependent

Processing
» Intel Stratix 10 F1760 NF43 package
» Default configuration: GX2800
» Core speed grade -2, I/O speed grade -2
» Contact Sky Blue or Zerif for other FPGA options

DDR4 SDRAM Memory
» Four banks of DDR4 SDRAM x 72 bits
» 8GB per bank
  (32GB total / 64GB version also available)
» Transfer Rate: 2400 MT/s

Application Development
» Supports multiple design flows including Intel FPGA OpenCL SDK and HDL

Electrical
» On-card power derived from 12V PCIe slot and two AUX connectors (one 8-pin, one 6-pin)
» Power dissipation is application dependent
» Typical power consumption ~225W
» Card designed to deliver up to 300W power consumption

Quality
» Manufactured to ISO9001:2008 IPC-A-610-Class III
» RoHS compliant

Power Supply Monitoring & Reporting
» On-board Intel USB Blaster
» Power and temperature monitoring
» Fault condition reporting to FPGA

FPGA Intel Stratix 10 | Memory 4x 8GB DDR4 | 12V AUX 1x 8-pin 1x 6-pin

USB #1 | PCIe | USB #2
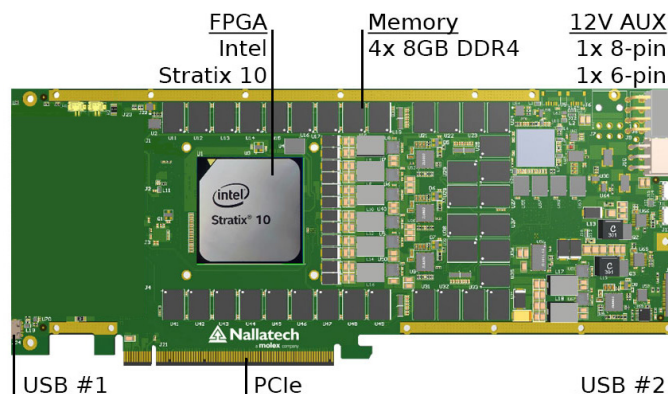
PCI backplate
» USB for programming, debug and monitoring
» User programmable tri-color LEDs

Cooling
» Standard: double-width active heatsink (embedded fan)
» Optional: double-width passive heatsink

Environmental
» Cooling: Air convection
» Operating temperature: 0°C to 35°C

Deliverables
» 520C FPGA card
» USB cable (front panel access)
» Built-In-Self-Test (BIST)
» OpenCL "HPC" Board Support Package (BSP)*
» 1 year access to online support lounge
» 1 year hardware warranty

Customization: Technical specifications (e.g. FPGA type, size, external memory capacity etc.) can be modified to meet the exact needs of commercial customer applications as off-the-shelf product available to the general market.

Application optimization: Sky Blue and Zerif provides consultancy services assisting customers in the porting, optimization and benchmarking of applications executed on Nallatech FPGA accelerators.

* Please check with Sky Blue or Zerif for availability

V2-5a: 2017/10/02