

**::NEW PRODUCT**

# Nallatech **520N** Network Acceleration Card



Introducing ground-breaking single precision floating point performance of up to 10 TFLOPS, the OpenCL-programmable 520N 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**
- **Four 100/40/25/10G Network Ports**

Four network ports enable dramatic FPGA-to-FPGA scaling independent of the PCIe bus, plus support for an array of serial I/O protocols operating up at 100/40/25/10G.

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

- **Machine Learning**
- **Gene Sequencing**
- **Data Analytics**
- **Real-time Network Processing**



## Scalable compute node with serial I/O for creation of directly-coupled, dense FPGA clusters



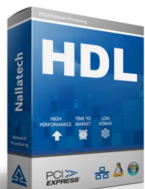
OpenCL

### » 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 520N

## Network Acceleration Card

:::NEW PRODUCT

### 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
- » L-TILE supporting up to 26Gbps SERDES I/O
- » 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

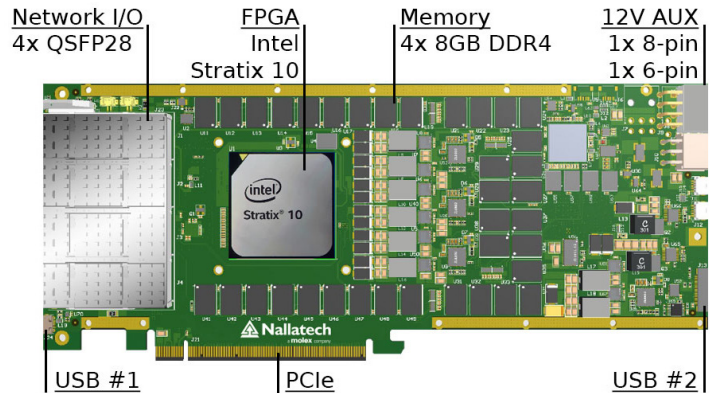
### Quality

- » 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

**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.



### Four 100/40/25/10G QSFP28 Network Ports

- » Flexible low jitter clocking supporting multiple telecoms standards - 100/40/25/10G
- » Each QSFP28 can be independently clocked
- » Network recovered clocking supported
- » Clocking options user programmable
- » 1PPS input (optional)

### 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

- » 520N 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

**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

Contact

**sky blue**  
microsystems

Sky Blue Microsystems GmbH  
Geisenhausenerstr. 18  
81379 Munich, Germany  
+49 89 780 2970, info@skyblue.de  
www.skyblue.de

**ZERIF**  
TECHNOLOGIES LTD.  
A SKY BLUE COMPANY, FOUNDED 1999

In Great Britain:  
Zerif Technologies Ltd.  
H5 Ash Tree Court  
Nottingham NG8 6PY, England  
+44 115 855 7883, info@zerif.co.uk  
www.zerif.co.uk