::NEW PRODUCT

Nallatech
FPGA MicroNode
Arria-10 SoC Enabled

The Nallatech FPGA MicroNode is a low power miniature Linux Edge-computer featuring an Intel Arria-10 SoC FPGA. This innovative integrated product features dual network I/O directly coupled to the FPGA fabric enabling ultra-low latency applications. Best-in-class out-of-box experience makes it faster than ever to start deploying your solution.

- **Intel Arria® 10 SX660 FPGA**
- **Dual-core ARM ® Cortex ®**
- **2 QSFP+ ports capable of supporting Ethernet, Fibre Channel and CPRI**
- **4 GByte DDR4 for FPGA fabric**
- **2 GByte DDR4 for ARM processor system**
- **NVMe SSD mass storage**
- **System Manager Monitoring via 1GbE**

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

- **Machine Learning Inference**
- **Internet of Things**
- **Intelligent Storage Gateway**
- **Real-time Network Analytics**

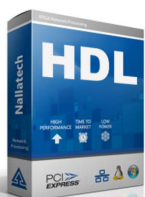# Standalone FPGA-Accelerated Edge Computer

Programming Models

» Intel FPGA OpenCL Software Development Kit (SDK)
- Abstraction enables faster and higher level software development flow
- Emulate OpenCL application code 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 Arria 10

FPGA MicroNode

Arria-10 SoC Enabled

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Form Factor

» Enclosure Size: 160mm x 240mm x 40mm (W x L x H)
   6.3in x 9.45in x 1.6in (W x L x H)
» Weight: 900g / 2 lbs.

Processing

» Intel Arria 10 SX F34 package
» Default configuration: SX 660, speed grade 2

DDR4 SDRAM memory (FPGA)

» One bank of DDR4 SDRAM x 72 for FPGA fabric
» 4GB @ 2133 MT/s

DDR4 SDRAM memory (ARM processors)

» One bank of DDR4 SDRAM x 40 for ARM processors
» 2GB @ 2133 MT/s

Storage

» M.2 embedded NVMe Solid State Drive
» Default configuration: 128GB
» 256MB QSPI Flash for preinstalled Linux
» 256MB QSPI Flash for FPGA configurations

Application Development

» Supports multiple design flows including HDL

Electrical

» External power 12V connector & power supply provided
» Power cable options for EU, US, etc.
» Pre-installed Angstrom Linux Distribution

Quality

» Manufactured to ISO9001:2000 IPC-A-610-Class III
» RoHS compliant

Power Supply Monitoring & Reporting

» On-board Intel USB Blaster II
» Voltage monitoring
» Temperature monitoring
» Fault condition reporting to FPGA
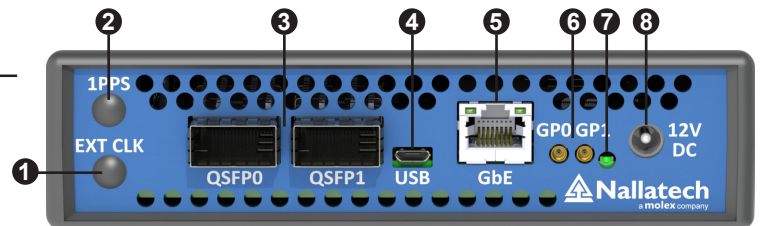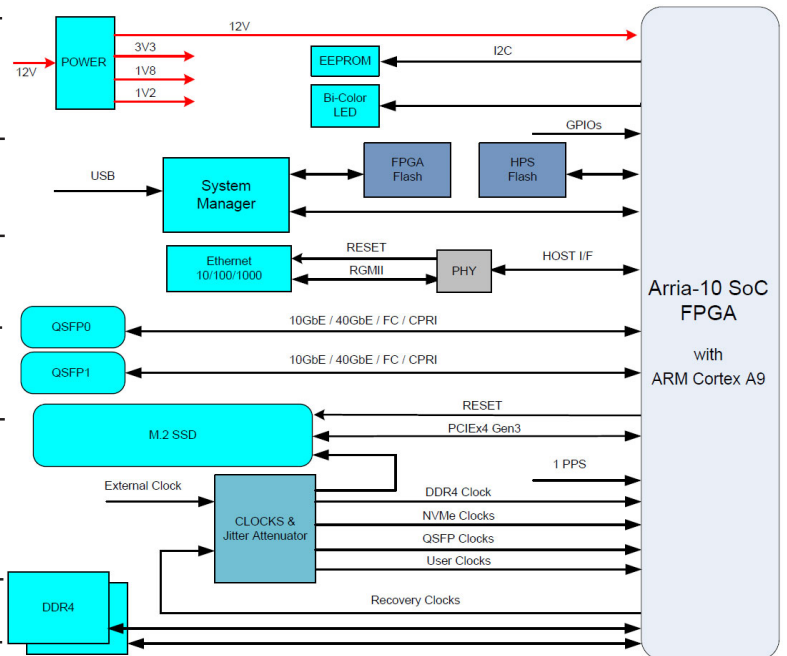
Two QSFP+ Network Ports (up to 40Gbps each)

» Flexible low jitter clocking supporting multiple telecoms standards – 40/10/1 GbE, CPRI, Fiber Channel
» Each QSFP+ can be independently clocked
» Network recovered with jitter attenuation
» QSFP+ Clocking: user programmable
» Others: external clock input, 1PPS input (optional)

Environmental

» Cooling: Air convection
» Operating temperature: 0°C to 35°C
» Storage temperature: -20°C to 80°C
» Relative humidity: 45 to 95% (non-condensing)

Deliverables

» Built-In-Self-Test (BIST)
» 1 year access to online support lounge
» 1 year hardware warranty

FPGA MicroNode: Front Panel Connectivity

1. (1) External clock (optional)
2. (1) 1PPS signal (optional)
3. (2) QSFP+ ports
4. (1) Micro USB port
5. (1) Ethernet 10M/100M/1G Ethernet port (RJ45)
6. (2) User GPIO connectors
7. (1) User bi-color LED
8. (1) 12V power supply

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