

**::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

ARM



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 Model



#### » 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

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## Arria-10 SoC Enabled

### 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)

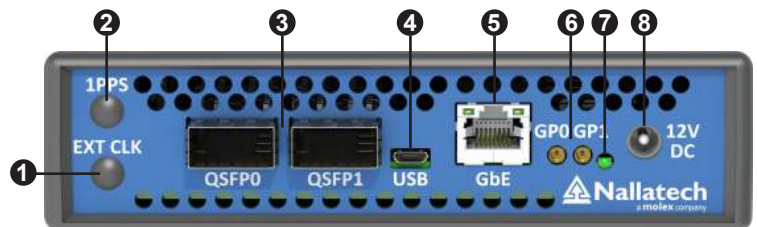
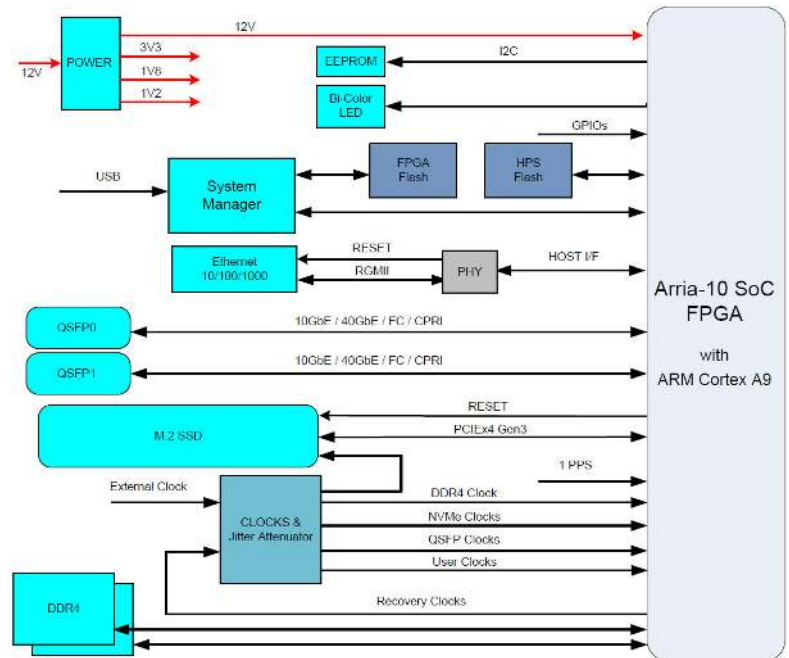
- » Flexible low jitter clocking supporting multiple telecoms standards – 40/10/1 GbE, CPRI, Fiber Channel
- » Each QSFP+ can be independently clocked
- » Network recovered with jitter attenuation
- » QSFP+ Clocking: user programmable
- » Others: external clock input, 1PPS input (optional)

### 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) External clock (optional)
- (2) User GPIO connectors
- (1) 1PPS signal (optional)
- (1) User bi-color LED
- (2) QSFP+ ports
- (1) User micro USB port
- (1) Micro USB port
- (1) Ethernet 10M/100M/1G Ethernet port (RJ45)

Nallatech's PCIe compliant FPGA boards rely on the host's cooling capabilities to stay within its acceptable operating temperature limits.

The user must make sure that the FPGA application is designed within the power limits documented by Nallatech and that sufficient cooling is provided to make sure the maximum FPGA die temperature is 15C below the maximum operating limit. Nallatech recommends that users perform a thermal characterization of their application in their system to meet these requirements.

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

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