

## Product Brief

# prodesign FALCON Stratix® 10 Acceleration Card

### PRODUCT SUMMARY

The FALCON Stratix acceleration card offers Intel® Stratix® 10 FPGA technology with high throughput HBM2 memory integration. The board is based on PCIe Gen3 x16 and offers four 100GE QSFP-DD front ports supporting 8x 100Gbit/s or 4x 200Gbit/s. Further, it offers three programmable SODIMM sockets and three high-speed NovaRay® connectors for connecting multiple memory modules or peripherals.

Supporting HDL, oneAPI, OpenCL flows.

### KEY MARKETS

- Video Broadcasting
- High Performance Computing
- AI and Machine Learning
- Network Acceleration

### KEY FEATURES

- Intel® Stratix® 10 MX or NX FPGA incl. HBM2
- PCIe Gen3 x16
- 3x SODIMM sockets with programmable I/Os for
  - Standard DDR4 modules
  - Custom memory modules or daughter cards
- 3x High-speed Samtec NovaRay® connectors for
  - Board-to-board connection
  - High throughput peripheral interfaces
- 4x QSFP28-DD network connectors

### SPECIFICATION

#### FPGA

Intel® Stratix® 10 MX/NX series:

- 1S10MX160-F55, 1S10MX210-F55
- 1S10NX210-F55

Same board – 21 different FPGA assembly options to match your requirements exactly:

- 16/ 8 GB HBM2
- 2.1M/ 1.7 M LEs
- Transceiver speed grades -1, -2 or -3/ Core speed grades -1, -2, or -3

FPGA configuration via

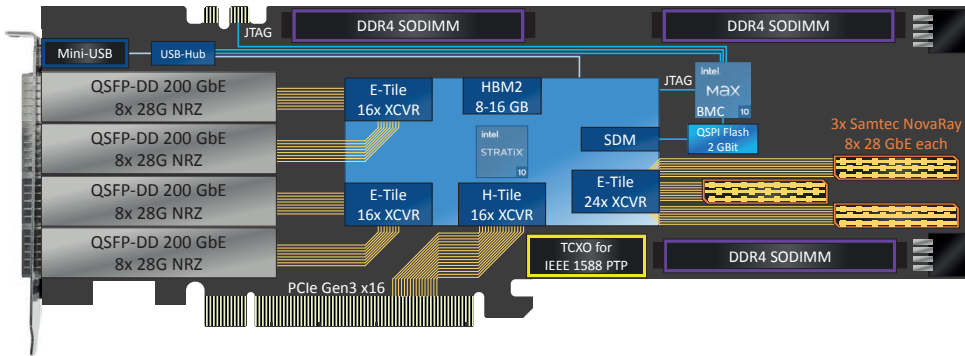
- PCIe CvP
- AVSTx8 passive configuration via BMC
- JTAG via BMC (built-in USB-Blaster II IP)

<b>FPGA Logic Elements (LEs)</b>	→ NX 2100: 2.073.000
	→ MX 2100: 2.073.000
	→ MX 1650: 1.679.000

<b>FPGA DSP (AI Tensor blocks)</b>	→ NX / MX 2100: 3.960
	→ MX 1650: 3.326

#### Extension Interfaces

- 3x Samtec NovaRay® connectors (112 Gbps PAM4 Extreme Density Arrays)
  - Up to 8x 28.9 Gbit/s and 8 GPIOs each
  - For extension boards or board-to-board connection
- 3x SODIMM slots with programmable I/Os for memory and/or other interfaces
  - Up to 2666 MT/s (64b/ 72b) and 32 GB DDR4 per SODIMM
  - Custom memory modules and Custom daughter cards with programmable I/Os and voltage levels



**ARCHITECTURE AND FEATURES**



**PRO DESIGN IN-HOUSE ADVANTAGES**

**R&D team (HW, SW):**  
 → Board modifications  
 → Customization  
 → Custom module development

**Production Lines:**  
 Full cycle with 40 years of experience  
 → fast and determined lead times  
 → several SMD lines

**Test Facilities**  
 → Quality  
 → Reliability  
 → Service support

**Further Information**

Please visit:  
[www.prodesign-fpga-acceleration.com](http://www.prodesign-fpga-acceleration.com)

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**FURTHER SPECIFICATIONS**

<b>Network Interfaces</b>	4x QSFP28-DD connectors → 4x 100Gbps / 8x 100Gbps / 2x200Gbps / 4x 200Gbps → User programmable low jitter clocking supporting 10/25/40/100GbE → Each QSFP28-DD can be independently clocked Stratium 3 TCXO for IEEE 1588 PTP network synchronization applications
<b>PCIe Interface</b>	PCIe Gen3 x16 interface direct to FPGA
<b>USB Interface</b>	Mini-USB connector at front I/O bracket → USB 2.0 access to BMC, S10 via USB-UART → Built-in USB Blaster II in BMC
<b>Board Management Controller</b>	→ Power sequencing → Voltage, current, temperature monitoring → Clock programming
<b>Power</b>	→ 2x Standard ATX 8-pin & PCIe slot 12V (up to 375 W) → 200 W typical max power consumption
<b>Software / IP</b>	→ prodesign SDK including BIST, BMC firmware → HDL, OpenCL, one API
<b>Operating Temperature</b>	Environmental temperature
<b>Board Cooling</b>	Passive, Active air and Liquid
<b>Board Form Factor</b>	254 mm x 111.28 mm (Full height, 3/4 length) Available in dual and single slot
<b>SERVICES</b>	
<b>Deliverables</b>	Acceleration card with cooling and cables
<b>Warranty</b>	1-year on hardware
<b>Order Code</b>	PD-FALCON-1SM16 /-1SM21 /-1SN21