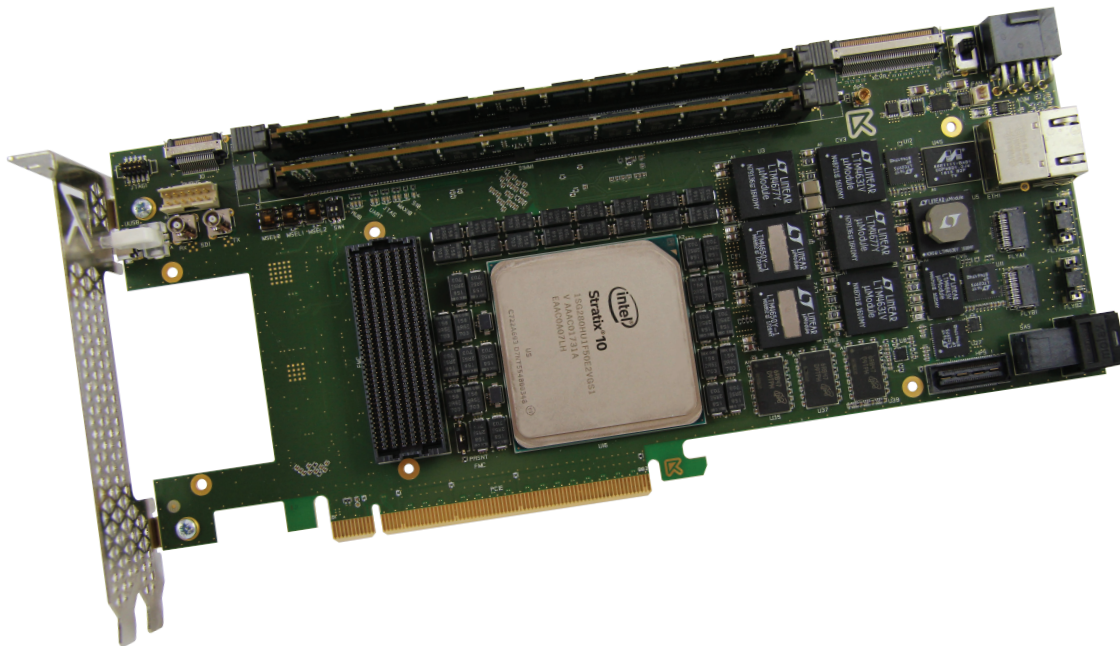# REFLEX CES
Custom Embedded Systems

SARGON

Instant-DevKit
Stratix 10 FPGA & SoC FMC+ IDK

The Stratix 10 FPGA FMC+ Instant-Development Kit provides to developers the best Out-Of-The box experience, combining the Best-In Class compact hardware platform and the most efficient intuitive software environment.

Its unique install and GUI interface allows an immediate start, and its reference designs enable fast turn-around designs, shortening and securing the developments.

Target markets:

High Performance Computing

IP & Asic Prototyping

DevKit**Invasion**

ATTILA
Arria 10 FPGA FMC IDK

ALARIC
Arria 10 SoC FMC IDK

ACHILLES
Arria 10 SoC SoM IDK

SARGON
Stratix 10 FPGA FMC+ IDK

SILICON LABS   Micron   Stratix 10   FMC+   PCI EXPRESS 3   PCI EXPRESS 4

Full specifications

FPGA configuration

- Intel Stratix 10 GX or SX 2800 KLEs, speed grade -2
- PCIe Gen3 x16, Gen4 x8 capable
- L-tile and H-tile compatible
- Max10 USB Blaster on board, UART over USB interface
- 1x Nor Flash 1GB quad SPI FPGA AS configuration
- 1x Nor Flash 1GB for configuration mode ST8
- Board Management Controller (BMC) for monitoring, EPCQ and clock programmation, IPMI features
- 1x FMC+ (VITA57.4) with 20 XCVR up to 28Gb/s, 4 XCVR up to 17.4Gb/s, 8 XCVR connected to the 2x Hard IP 100G transceivers blocks
- 2x banks DDR4 vertical RDIMM, 16-32GBytes capable each, x72bit, up to 2400MT/s
- 1x bank DDR4, bus x72, 8GBytes up to 2400MT/s (HPS bank mutual with FPGA)

Power : Max 240W including FMC board, delivered with active heat-sink

Operating range : 0°C / +70°C

Communication Interfaces

- 2x FireFly SAMTEC quad connector (28Gb/s each XCVR) - 1 FireFly connected to 100G IP
- MiniSAS quad connector (1 HD SAS, 4 SATA HDD, NVMe inter face capable)
- GPIO extension connector : 9 LVDS usable as 18 LVCMOS
- XCVR extension connector : 10 XCVR, 8 LVDS, Clock In&Out
- 48 dedicated HPS IO connector (daughter board for SX)
- 1x Ethernet SGMII interface (to FPGA), Marvel Phy 88E11

Clock Circuitry

- Programmable PLL oscillator (Si5341), output clocks frequency between 0.0001 MHz to 750 MHz
- High precision oscillator, clock accuracy 20MHz- 0.01ppm for Precision Time Protocol (PTP) IEEE 1588
- One coax connector for PPS (pulse per second)

Board dimensions : 254mm x 111.5mm , Dual slot PCIe

Standards and compliance

- RoHS/REACH compliant
- UL certified
- ISO9001 Facility

Kit Content

- Full height two slots PCIe board with active heat-sink and PCIe bracket
- Power adapter (US, UK, EU, JP) and user cables
- FMC+ Loop back board for test and debug
- 2x DDR4 16Go 24000MT/s VLP RDIMM
- Capacitive Touch Panel with I2C Interface, 800 x 480 Pixels 3.3V LCD, 24-bit Parallel RGB Interface
- REFLEX CES innovative software interface (GUI) / Windows64

- Board Support Package (hardware documentation, HDL Test Designs, FMC+ and extension connectors FPGA pinout connection)
- Kernel Linux support, U-boot bootloader and comprehensive user documentation
- One year Quartus Prime Pro DKE / OpenCL SDK license
- OpenCL HPC BSP included with the DevKit (delivery upon request)
- Mechanical package (under request)

Ordering information

Development Kit, Intel Stratix 10 FPGA, H-Tile, ES	=	RXCS10X280HAF50-IDK00A
Development Kit, Intel Stratix 10 FPGA, H-Tile, Prod	=	RXCS10X280HPF50-IDK00A
Development Kit, Intel Stratix 10 SoC, H-Tile, Prod	=	RXCS10S280HPF50-IDK00A