

Intel® Agilex™ FPGA

Agility and Flexibility for the Data-Centric World

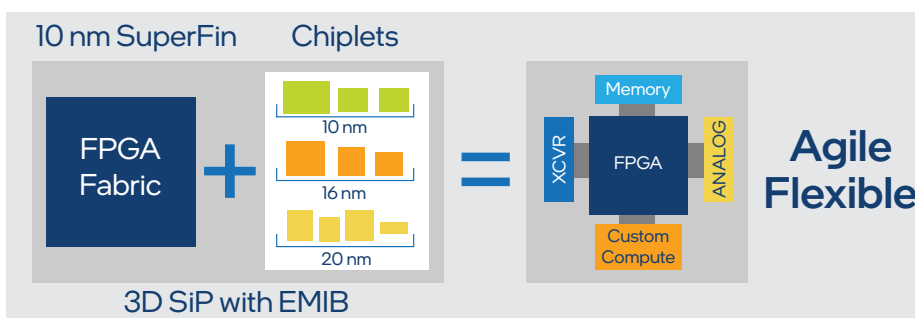
**45%
HIGHER
PERFORMANCE***
(geometric mean versus
Intel® Stratix® 10 FPGA)

**UP TO 40%
LOWER POWER***
(versus Intel® Stratix® 10 FPGA)

**UP TO 40
TFLOPS***

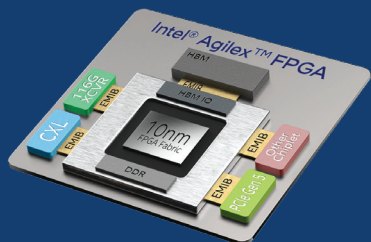
**~2X FASTER
FABRIC
PERFORMANCE
PER WATT**
(versus 7 nm competitor's FPGA)*

The Intel® Agilex™ FPGA family brings together the power of Intel's 10 nm SuperFin process technology, 3D heterogeneous system-in-package (SiP) integration with Intel's proprietary Embedded Multi-Die Interconnect Bridge (EMIB), and an innovative chiplet-based architecture to deliver customized connectivity and acceleration for a variety of applications.



The new architecture allows the FPGA fabric to be combined with purpose-built tiles, such as transceivers, processor interfaces, optimized I/O, custom computing, Intel® eASIC™ devices, and many other functions to create solutions that are uniquely optimized for each application.

From the edge through the network to the cloud, an explosion of data is driving the need for flexibility and agility in the products that process, move, and store data. Advances in analytics are compelling hardware systems to cope with evolving standards, support varying workloads, and integrate multiple functions.



**Process Data
Move Data
Store Data**

Markets Demanding Customization

Edge

Real-Time
Actionable
Intelligence

Network

High Bandwidth
Aggregation,
Processing
and Security

Data Center

Managing,
Organizing, and
Processing the
Explosion of Data

Intel® Agilex™ FPGA Series

F-Series

For wide range of applications

Up to 58 G transceivers

PCIe Gen4 x16

DDR4 SDRAM

Quad-core Arm Cortex-A53 SoC option

I-Series

For high-performance processor interface and bandwidth-intensive applications

Up to 116 G transceivers

PCIe Gen5 x16

DDR4 SDRAM

Quad-core Arm Cortex-A53 SoC

Compute Express Link (CXL) to Intel® Xeon® Scalable processor option

M-Series

For compute-intensive applications

Up to 116 G transceivers

PCIe Gen5 x16

DDR5 and Intel® Optane™ persistent memory support

Quad-core Arm Cortex-A53 SoC

Compute Express Link (CXL) to Intel Xeon Scalable processor option

High Bandwidth Memory option

Intel Agilex FPGAs – Key Attributes

KEY ATTRIBUTES

Network Security	Hardened 200G (Half Duplex) crypto cores supporting AES-GCM encryption / decryption, MACsec IP to secure network traffic.
Compute Express Link (CXL)	First FPGA with a cache and memory coherent interconnect to Intel® Xeon® scalable processors for high-speed, low-latency and efficient performance between CPU and FPGA.
Transceiver data rates	Support up to 116 Gbps data rates for data intensive applications and hardened media access control, physical coding sublayer (PCS), and forward error correction (FEC) up to 400 Gbps Ethernet (GbE) for networking applications via hardened IP blocks.
Hardened PCIe PCI Express (PCIe) Gen5 support	2X higher bandwidth compared with PCIe Gen4 to Gen5 x16 interfaces.
2nd generation Intel® Hyperflex™ FPGA Architecture	Enables significant design optimization to deliver 45% higher performance, or up to 40% lower total power compared with Intel® Stratix® 10 FPGAs.*
DSP innovation	Hardened BFLOAT16 and up to 40 tera floating point operations per second (TFLOPS)* of digital signal processing (DSP) performance (FP16) for higher performance/watt.
Advanced memory support	Industry's only FPGA to support industry standard DDR5, high-bandwidth memory (HBM), and Intel® Optane™ persistent memory support.
Intel® eASIC™ devices	Structured ASIC solutions with reusable intellectual property (IP) cores provide a custom logic continuum to enable scaling while saving on cost and power.

For More Information

- Intel Agilex FPGA homepage: www.intel.com/agilex
- Intel Agilex FPGA Architecture White Paper: www.intel.com/agilex-wp
- Compute Express Link: www.computeexpresslink.org
- Contact an Intel sales representative for inquiries



* Performance varies by use, configuration and other factors. Learn more at www.Intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. No product or component can be absolutely secure.

Your costs and results may vary.

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