The Intel Agilex® 7 FPGA F-Series, I-Series, and M-Series brings together the power of Intel's 10 nm SuperFin and Intel 7 technology, 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 you to combine the FPGA fabric with purpose-built chiplets, 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.

Markets Demanding Customization

- **Edge**
  - Real-Time Actionable Intelligence

- **Network**
  - High-Bandwidth Aggregation and Processing

- **Data Center**
  - Managing, Organizing, and Processing the Explosion of Data
## Intel Agilex® 7 FPGA Series

### F-Series
For wide range of applications that require optimal balance of power and performance

- 573k – 2.7M LEs
- Up to 58 G transceivers
- PCIe 4.0 x16
- DDR4 interface
- Quad-core Arm Cortex-A53 SoC option

### I-Series
For high-performance processor interface and bandwidth-intensive applications

- 1.9M – 4M LEs
- Up to 116 G transceivers
- PCIe 5.0 x16
- DDR4 interface
- Quad-core Arm Cortex-A53 SoC option
- Compute Express Link (CXL) to Intel® Xeon® Scalable processor

### M-Series
For compute-intensive and high-memory-bandwidth applications

- 3.2M – 3.8M LEs
- Up to 116 G transceivers
- PCIe 5.0 x16
- DDR4, DDR5 and LPDDR5 interfaces
- Quad-core Arm Cortex-A53 SoC option
- Compute Express Link (CXL) to Intel® Xeon® Scalable processor
- HBM2e (up to 32 GB)

### Intel Agilex FPGAs – Key Innovations

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<th>Key Innovations</th>
<th>Description</th>
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<tr>
<td>Manufactured using advanced Intel technologies and processes</td>
<td>Utilizes advanced Intel process technologies (Intel 10 nm SuperFin and Intel 7), contributing to ~2X fabric performance per watt compared to competing 7 nm FPGAs and supply chain resiliency.</td>
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<td>Compute Express Link (CXL)</td>
<td>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.</td>
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<td>Highest transceiver data rates</td>
<td>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.</td>
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<tr>
<td>Hardened PCI Express (PCIe) 5.0 support</td>
<td>First FPGA providing PCIe 5.0 x16 support. Enables 2X higher bandwidth compared with PCIe 4.0 interface allows for higher data throughput.†</td>
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<tr>
<td>2nd Generation Intel Hyperflex™ FPGA Architecture</td>
<td>Enables significant design optimization to deliver up to 50% higher performance, or up to 40% lower total power compared to Intel® Stratix® 10 FPGAs.†</td>
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<tr>
<td>DSP enhanced for floating point and AI functions</td>
<td>First FPGA to support hardened half-precision floating point (FP16) and BFLOAT16, providing up to 38 tera floating point operations per second (TFLOPS)² of digital signal processing (DSP) performance (FP16) for higher performance/watt for artificial intelligence (AI) and other compute-intensive functions.</td>
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<td>Industry-leading memory interface support</td>
<td>Industry’s only FPGA to support industry-standard DDR5, high-bandwidth memory (HBM).</td>
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<td>Advanced processor options</td>
<td>Integrated hard Arm processor options quad-core A53.</td>
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<td>Intel® eASIC™ devices migration option</td>
<td>Structured ASIC solutions with reusable intellectual property (IP) cores provide a custom logic continuum to enable lower cost and power.</td>
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For More Information

- Intel Agilex FPGAs and SoC FPGAs portfolio page: intel.com/agilex
- Intel Agilex 7 FPGAs and SoC FPGAs product page: intel.com/agilex7
- Compute Express Link: www.computeexpresslink.org
- Intel® Quartus® Prime Software page: intel.com/quartus
- Contact an Intel sales representative for inquiries