Defense-Grade AMD Virtex™ 7 XQ FPGAs

Reliable FPGA Portfolio for Aerospace and Defense

ON THIS PAGE

Tried. Trusted. Long Lasting.

With typical lifespans extending well past 15 years, you can depend on AMD devices for the life of your design—extending AMD 7 Series FPGAs and adaptive SoCs through **2040** and AMD UltraScale+™ FPGAs and adaptive SoCs through **2045.**

Read the Blog>

Feedback

10GBASE-KR Electrical Conformance with AMD Virtex™ 7 FPGAs

7 Series FPGA GTH transceivers have achieved 100% electrical conformance to the 10GBASE-KR standard. In this video you'll see a Virtex™ 7 FPGA pass the specification's receiver interference tolerance test over a 24" backplane.

AMD Virtex™ 7 XQ FPGA Product Advantage

- Large portfolio of defense-grade devices

- 100% full-range tested extended temperature options (-55°C to +125°C) with ruggedized packaging
- Fully-leaded (Pb) and extended life-time support options
- Maskset control and anti-counterfeiting features
- Fail-safe information assurance and anti-tamper technology

Programmable System Integration

- Up to 980K LC for the ultimate integration on enterprise systems
- Ultimate scalability to leverage design resources

Increased System Performance

- High-speed serial connectivity with built-in multi-gigabit transceivers with maximum rates of 6.6 Gb/s up to 11.3 Gb/s
- Vastly improved capabilities for next generation combat systems

BOM Cost Reduction

- Multiple FPGA reduction for in-line encryption systems
- Key sub system integration for EW, ISR, Missiles & Munitions, MILCOM

Total Power Reduction

- Up to 50% lower power over previous generations
- Reduce cooling requirements for next generation systems

Accelerated Design Productivity

- Scalable optimized architecture, comprehensive tools and IP

Leading System Solutions

Defense-grade Virtex 7 XQ devices offer a large portfolio of high-performance, high reliability FPGAs for systems in markets such as:

- Intelligence, Surveillance and Reconnaissance (ISR)
- Electronic Warfare (EW)
- MILCOM
- Commercial & Military Avionics
- Missiles & Munitions

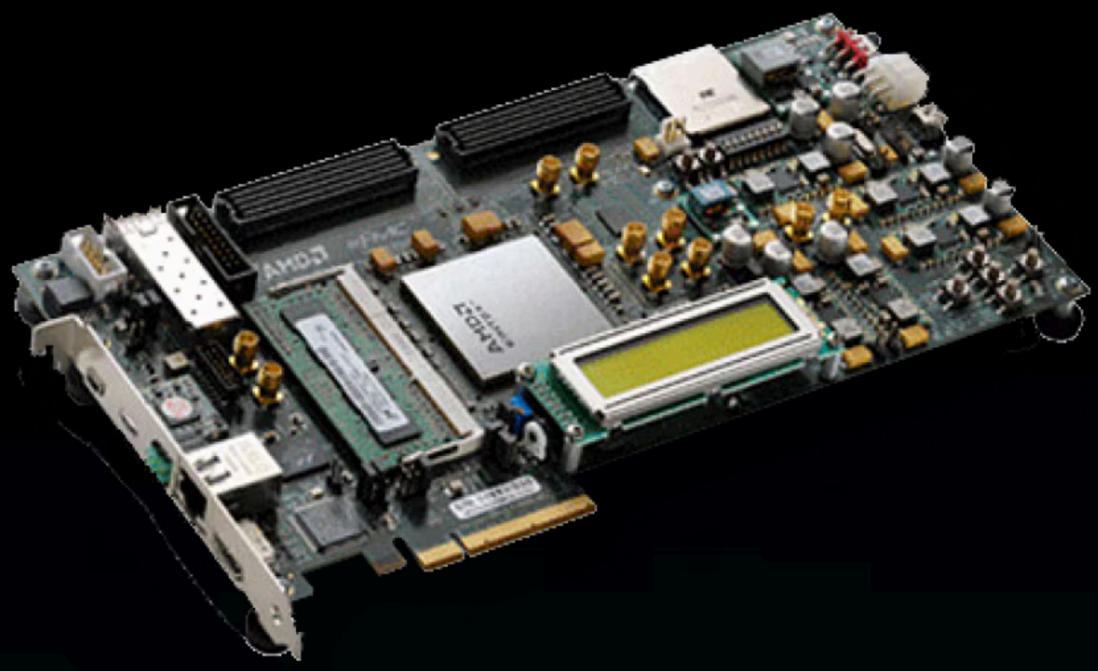
Product Table

	XQ7V585T	XQ7VX330T	XQ7VX485T	XQ7VX670T	XQ7VX980T
Logic Cells	582,720	326,400	485,760	693,120	979,200
DSP Slices	1,260	1,120	2,800	3,600	3,600
Memory (Kb)	28,620	27,000	37,080	52,920	54,000
GTX 10.3 Gb/s Transceivers	36	-	28	-	-
GTH 11.3 Gb/s Transceivers	-	28	-	48	24
I/O Pins	850	700	700	1000	900
Available M-temp -55°C to +125°C	Yes	Yes	Yes	Yes	Yes

Product Selection Guide >

Get Started

Jump-start your design cycle and achieve fast time-to-market with the proven hardware, software support, tools, design examples, and documentation available for the kit.



AMD Virtex 7 FPGA VC707 Evaluation Kit

The Virtex™ 7 FPGA VC707 Evaluation Kit is a full-featured, highly-flexible, high-speed serial base platform using the Virtex 7 XC7VX485T-2FFG1761C and includes basic components of hardware, design tools, IP, and pre-verified reference designs for system designs that demand high-performance, serial connectivity and advanced memory interfacing. The included pre-verified reference designs and industry-standard FPGA Mezzanine Connectors (FMC) allow scaling and customization with daughter cards.

View Product >

Support & Resources

FPGA FAMILY VIRTEX-7 FPGAS

DELIVERING HIGHEST SYSTEM PERFORMANCE WHILE REDUCING POWER CONSUMPTION

THE XILINX VIRTEX-7 FPGA FAMILY: UNLEASHING PERFORMANCE AND INNOVATION WITH HIGH-DENSITY, LOW-POWER 28NM TECHNOLOGY

The Challenge: Insatiable Bandwidth Demand

- Implementing advanced serial connectivity standards for next-generation networks
- Increasing data processing performance
- Getting products to market faster
- Meeting restricted power budgets

The Solution: Xilinx Virtex-7 FPGAs

- 16 x 28 Gb/s transceivers to create a single-chip FPGA solution for 400G line cards
- Up to 2M logic cell capacity for building massively parallel high-performance circuits enabled by stacked-silicon interconnect (SSI) technology
- Up to 6.7TMACS throughput enabled by advanced DSP slice architecture
- The power of programmability for rapid development, integration, and deployment
- EasyPath™-7 devices, for flexible and risk-free cost reduction
- Reduced power enabled by new 28nm High-Performance, Low-Power (HPL) process, architectural enhancements, and advanced software

Enabling Tomorrow's Innovations

The Xilinx Virtex®-7 Family of FPGAs breaks through previous physical limits to enable tomorrow's innovations. A combination of ultra high-end bandwidth and capacity boosts system performance to address the most complex system requirements. The uncompromised performance is delivered as the foundation of a programmable platform, with the versatility to maximize differentiation in today's competitive markets.

Unprecedented Throughput

With up to 96 advanced serial transceivers, the Virtex-7 FPGAs enable designers to build breakthrough bandwidth into next-generation communications solutions. The advanced throughput enables unprecedented advancements for network infrastructure, including the only single-FPGA solution for N x100G and 400G optical networking.

New Milestones in Performance

Virtex-7 FPGAs deliver up to 2 million logic cells and more than 5TMACS DSP throughput. These resources enable massively parallel data processing architectures that perform more work with each clock cycle. With up to 96 advanced serial transceivers, Virtex-7 FPGAs offer more than 47tbps of serial bandwidth. These capabilities enable new levels of processing performance for advanced RADAR, high-performance computing, and advanced medical imaging systems.

Exceeding Moore's Law

Xilinx pioneered SSI technology to achieve increases in capacity and performance that exceed the pace of Moore's Law. As a result, Virtex-7 FPGAs offer more than 3.5 times the capacity of the previous generation. Combined with the family's memory, DSP, and I/O resources, Virtex-7 devices establish new performance benchmarks.

Low Power by Design

Industry-leading 28nm HPL process technology achieves the optimum balance of performance and power for these-next generation FPGAs. Architectural enhancements further reduce I/O power consumption while increasing bandwidth. And intelligent clock-gating algorithms in Xilinx design tool software further reduce active power consumption.

AMD XILINX

Virtex 7 Product Brief

AMD Virtex 7 FPGA Family: Unleashing Performance and Innovation with High-Denstiy, Low-Power 28 nm Technology

View Product Brief

AMD Virtex 7 XQ Overview

Explore more details about the 7 Series FPGAs.

Virtex 7 XQ Overview >

AMD Virtex 7 DC and AC Switching Characteristics

Leverage your design using the datasheets for voltage/speed grade information.

Virtex 7 Data Sheet >

7 Series FPGAs Packaging and Pinout Product Specification

Find more information on packaging and pinout in the user guide.

7 Series FPGAs Packaging >

Documentation

Explore all Virtex7 XQ white papers, data sheets, documentation and more.

View Documentation >

Partner Design Services

AMD offers options for partners to further differentiate themselves through our Premier and Certified programs.

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