DEFENSE-GRADE FPGAS:
SECURITY, LONGER MISSION
PROFILE AND RELIABILITY

DEFENSE-GRADE SPARTAN-6Q FPGAS

Xilinx® Spartan®-6Q defense-grade FPGAs represent a technology leap forward in three directions: security, power reduction, and integration. Hand-held developers can meet current design challenges by building lighter, smaller mobile devices that more easily comply with the latest security mandates. And with battery-life that can be extended far longer even as more functionality is built into the target systems, Spartan-6Q defense-grade FPGAs are the ideal choice for secure, low power, low cost small form factor designs.

Spartan-6Q Family Target Applications
- Military Communications (MILCOM)
  - Type-1 Crypto hand held radios
  - Multi-waveform capable radios
- Missiles & Munitions (M&M)
  - Small Diameter Bomb (SDB)
  - Smart Munitions

Off-the-Shelf Ruggedized Devices with 65% Reduction of Power and Cost

Compared to the previous grade-equivalent Xilinx devices, Spartan-6Q FPGAs leverage new technology node, Advanced Power Management and integration innovations to significantly reduce size, weight, power, and cost (SWaP-C). In particular, overall power consumption has been lowered by almost two-thirds while lowering costs.

Pin compatibility with commercial-grade products and comprehensive Xilinx Targeted Design Platforms, which combine the necessary hardware, design tools, IP and reference designs, further drive down development costs. Designers can start immediately, using affordable commercial-grade solutions and introduce the defense-grade Spartan-6Q devices when project requirements call for more security or extended temperature. Bare die options are also available, to accommodate the development of custom form factors.

Today's Portability/Mobility Issues

- Tougher security mandates
- Longer mission profile and lower weight
- Budget cuts
- Harsh operating environments

The Xilinx Defense-Grade Spartan-6Q FPGA Family

- Industry-leading security (information assurance and anti-tamper features; testing and support for compliance)
- Superior SWaP-C, with Small Form Factor (SFF) packaging and high integration
- 65% lower power than pervious Spartan families supporting advance power management
- Reliability with full temp range testing
- Part of a defense portfolio, with long-term support

XILINX®

Industry-Leading Cryptography and Anti-Tamper Solutions

In 2006, Xilinx introduced the first single-chip cryptography (SCC) solution for FPGAs. The Spartan-6Q family delivers third-generation SCC technology for advanced information assurance. Choosing Xilinx devices gives designers the benefits of more than 20 years of industry and agency partnerships, a proven in-production information assurance approach, and a commitment to industry-leading mask set control for mission-critical security designs including Type-1 cryptography.

Third-generation anti-tamper features and Security Monitor (SECMON) IP also help Spartan-6Q FPGA designers comply with regulations such as the U.S. Department of Defense (DoD) mandated 5000 Series AT requirements. By delivering cost-effective and power-conserving information assurance and anti-tamper features, Spartan-6Q FPGAs contribute to leading-edge designs for secure hand-held and portable devices.

Reliably Operating in Harsh Environments

Xilinx defense-grade Spartan-6Q devices offer protection against 'tin-whiskering' and are also fully tested for extended temperature ranges, giving designers a choice of solutions qualified for operation in either I-temperature or Q-temperature ranges.

Choosing the Xilinx Difference

Spartan-6Q FPGAs build on previous generations of defense-grade solutions from Xilinx. Besides tailoring devices and design platforms to the unique needs of defense projects, Xilinx commits to long-term support including extended mask set control. Over these product lifespans, Xilinx dedicates priority resources in the form of system architecture teams, support professionals, and operations experts that understand what it takes to provide stable, reliable application platforms to defense suppliers. The unrivaled heritage and investments behind the Xilinx solutions make them the best choice for current and future global military markets.

DEFENSE-GRADE FPGAS

| | **Defense-Grade FPGAs** | | | |
| | **Spartan®-6Q FPGAs** | | | |
Part Number	XQ6SLX75	XQ6SLX150	XQ6SLX75T	XQ6SLX150T
Logic Resources				
Logic Cells	75,000	147,000	75,000	147,000
CLB Flip-Flops	93,000	184,000	93,000	184,000
Memory Resources				
Maximum Distributed RAM (Kb)	692	1,355	692	1,355
Block RAM (18 Kb each)	172	268	172	268
Total Block RAM (Kb)	3,096	4,824	3,096	4,824
Clock Resources				
Clock Management Tiles (CMT)	6	6	6	6
Embedded Hard IP Resources				
DSP48A1 Slices	132	180	132	180
Interface Blocks for PCI Express®	—	—	1	1
Memory Controller Blocks	2	2	4	4
GTP Low-Power Transceivers	—	—	8	8
Miscellaneous				
Speed Grades: Extended (Q: -40°C - 125°C)	—	-2	-2	-2
Speed Grades: Industrial (I: -40°C - 100°C)	-L1, -2	-L1, -2	-2, -3	-2, -3
Package / Area	Maximum SelectIO™ Interface Pins (GTP Serial Transceivers)			
CS(G)484[1,2,3] — 19 x 19 mm	328	338	292 (4)	296 (4)
FG484[2,3] — 23 x 23 mm	270	338	268 (4)	296 (4)
FG(G)676[1] — 27 x 27 mm			348 (8)	396 (8)

XMP076 (v2.0)

Notes: 1. Pb-free (additional G) not available for Spartan-6 Q-temp devices.
2. Devices in the CS(G)484 and FG484 support two memory controllers.
3. Due to the GTP transceivers in the LXT devices, pinouts for the LX and LXT devices are not compatible.

☒ XILINX®