

# Xilinx Spartan<sup>®</sup>-3AN FPGAs Non-Volatile Secure FPGAs for Highest System Integration



# The System Design Dilemma

 System Designers today face a common challenge – how to benefit from inherent security, board-space savings and ease-of-configuration of non-volatile FPGAs while still taking advantage of the extensive features and high performance available only in leading SRAM-based FPGAs

# The Xilinx Spartan-3AN Platform Solution

- The Spartan<sup>™</sup>-3AN platform offers uncompromised SRAM-based FPGA with leading-edge Flash technology
- Based on the industry's most successful, cost-effective, and productionproven 90nm technology, the platform integrates highly advanced on-chip security features along with the industry's largest user Flash

# **Spartan-3AN Platform Key Features**

### **Delivering the Best of Both Worlds**

The non-volatile Spartan-3AN platform provides the best of both worlds – low cost and extensive features of leading-edge SRAM-based FPGAs with board-space savings and ease-of-configuration of non-volatile FPGAs. With highly advanced on-chip security features, the Spartan-3AN platform provides a robust, cost-effective solution to help prevent reverse-engineering, cloning, and overbuilding. Furthermore, designers can achieve superior system flexibility with up to 11Mb of integrated user Flash which can be used for both device configuration as well as a valuable system resource.

### The Complete Low-Cost FPGA Platform

The Spartan-3AN platform is a highly integrated device targeted for the costconscious, high-volume market. It is a full-feature platform of five devices with system gates ranging from 50K to 1.4M gates, and I/Os ranging from 108 to 502 I/Os, with density migration, and pin compatible with the Spartan-3A platform.

Spartan-3AN FPGAs support up to 576 Kbits of fast block RAM with byte-write enable, and up to 176 Kbits of distributed RAM. There are built-in multipliers for efficient DSP implementation and Digital Clock Managers (DCMs) for system level clock management functions. Based on production-proven 90nm technology, Spartan-3AN FPGAs provide exceptional performance while still being extremely cost-effective.



#### Industry's first 90nm FPGA with Electronic Serial Numbering

Each FPGA includes a permanent unique Device DNA serial number and Factory Flash ID. Designers have complete flexibility in implementing highly customized algorithms for both authentication, as well as non-authentication responses such as limited-functionality, time-bomb, and self-destruct. This can significantly deter reverse-engineering, cloning, and overbuilding.

### Industry's Largest On-Chip User Flash

The new Spartan-3AN platform boasts the industry's largest on-chip user flash with a capacity of up to 11Mb. It provides simple and secure embedded application storage, while also enabling advanced real-time control with fine-grained protection, lockdown and erase features.

#### Widest Support for I/O Standards

The Spartan-3AN FPGA is especially suitable for display devices supporting both TMDS and PPDS standards. With support for 26 popular single-ended and differential signaling standards including LVDS, RSDS, SSTL3 Class I & II, full hot-swap compliance, and pre-engineered interface IP solutions such as PCI, PCI Express, USB, Firewire, CAN, SPI, and I2C, the Spartan-3AN platform provides an industry-leading connectivity solution.

Spartan-3AN FPGA Platform				
C3S50AN	XC3S200AN	XC3S400AN	XC3S700AN	XC3S1400AN
50K	200K	400K	700K	1400K
,584	4,032	8,064	13,248	25,344
3	16	20	20	32
3	16	20	20	32
54K	288K	360K	360K	576K
1K	28K	56K	92K	176K
М	4M	4M	8M	16M
527K	2M	2M	5M	11M
2	4	4	8	8
26	26	26	26	26
50	90	142	165	227
08	195	311	372	502
Package and I/O Offerings				
C3S50AN	XC3S200AN	XC3S400AN	XC3S700AN	XC3S1400AN
08				
	195			
		311		
			372	
				502
	CC3S50AN OK ,584 4K 1K M 27K 6 0 0 8 ckage and I CC3S50AN	XC3S50AN XC3S200AN   OK 200K   0K 200K   ,584 4,032   16 16   4K 288K   1K 28K   1K 28K   27K 2M   4 6   0 90   08 195   C3S50AN XC3S200AN	XC3S200AN XC3S400AN   OK 200K 400K   0K 200K 400K   ,584 4,032 8,064   16 20   16 20   4K 288K 360K   1K 28K 56K   M 4M 4M   27K 2M 2M   27K 2M 2M   0 90 142   08 195 311   ackage and I/O Offerings XC3S400AN XC3S400AN   08 195 195	XC3S50AN XC3S200AN XC3S400AN XC3S700AN   0K 200K 400K 700K   ,584 4,032 8,064 13,248   16 20 20   16 20 20   4K 288K 360K 360K   1K 28K 56K 92K   M 4M 4M 8M   27K 2M 2M 5M   6 26 26 26   0 90 142 165   08 195 311 372   ackage and I/O Offerings XC3S200AN XC3S400AN XC3S700AN   08 195 311 372   195 311 372 311

\* Spartan-3AN platform is pin compatible with Spartan-3A platform supporting platform migration

#### **Flexible Power-Management Modes**

The "Suspend" Mode in Spartan-3AN FPGAs provides a very flexible and effective way to preserve power. In this mode, the total FPGA power is reduced by more than 40%. The configuration data as well as flip-flop and RAM values are also maintained. In addition, it includes a fast wake-up mechanism and system level synchronization across time domains.

#### Take the Next Step

Visit our website *www.xilinx.com/spartan3an* or call your local sale office or distributor for more information about Spartan-3AN FPGAs. To start your design immediately, download your free ISE WebPACK<sup>™</sup> design tools at *www.xilinx.com/ise*. To begin evaluating Spartan-3AN FPGAs, order your hardware development board at *www.xilinx.com/s3anstarter* 

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