

# Integrator Series FPGAs: 1200XL and 3200DX Families



## Features

### High Capacity

- 2,500 to 40,000 Logic Gates
- Up to 4 Kbits Configurable Dual-Port SRAM
- Fast Wide-Decode Circuitry
- Up to 288 User-Programmable I/O Pins

### High Performance

- 225 MHz Performance
- 5 ns Dual-Port SRAM Access
- 100 MHz FIFOs
- 7.5 ns 35-Bit Address Decode

### Ease-of-Integration

- Synthesis-Friendly Architecture Supports ASIC Design Methodologies.
- 95–100% Device Utilization using Automatic Place and Route Tools.
- Deterministic, User-Controllable Timing Via DirectTime Software Tools with Up To 100% Pin Fixing.
- Supported by Actel Designer Series Development System with Interfaces to Popular Design Environments including

Cadence, Escalade, Exemplar, IST, Mentor Graphics, Synopsys, and Viewlogic.

- IEEE Standard 1149.1 (JTAG) Boundary Scan Testing.

## General Description

Actel's Integrator Series FPGAs are the first programmable logic devices optimized for high-speed system logic integration. Based on Actel's proprietary antifuse technology and 0.6-micron double metal CMOS process, Integrator Series devices offer a fine-grained, register-rich architecture with the industry's fastest embedded dual-port SRAM and wide-decode circuitry.

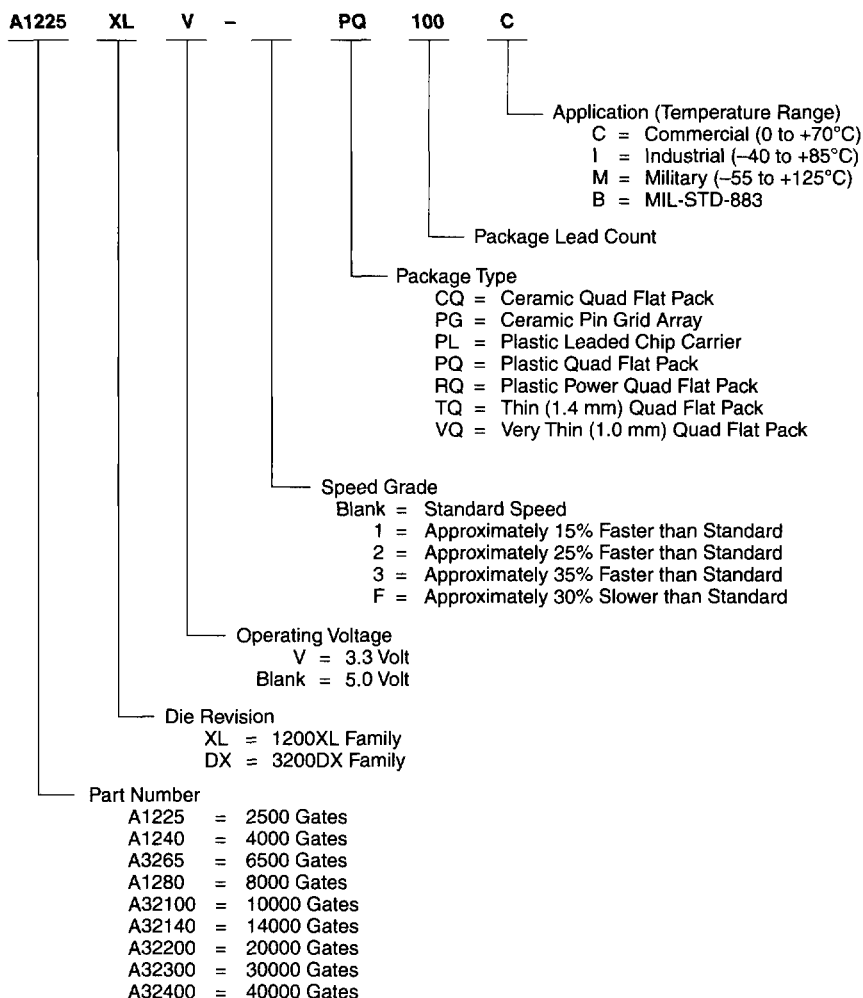
Integrator Series' 3200DX and 1200XL families were designed to integrate system logic which is typically implemented in multiple CPLDs, PALs, and FPGAs. These devices provide the features and performance required for today's complex, high-speed digital logic systems. The 3200DX family offers the industry's fastest dual-port SRAM for implementing fast FIFOs, LIFOs, and temporary data storage. The large number of storage elements can efficiently address applications requiring wide datapath manipulation and transformation functions such as telecommunications, networking, and DSP.

## Integrator Series Product Profile

Device	A1225XL	A1240XL	A3265DX	A1280XL	A32100DX	A32140DX	A32200DX	A32300DX	A32400DX
<b>Capacity</b>									
Logic Gates <sup>1</sup>	2,500	4,000	6,500	8,000	10,000	14,000	20,000	30,000	40,000
SRAM Bits	N/A	N/A	N/A	N/A	2,048	N/A	2,560	3,072	4,096
<b>Logic Modules</b>									
Sequential	231	348	510	624	700	954	1,230	1,888	2,526
Combinatorial	220	336	475	608	662	912	1,184	1,833	2,466
Decode	N/A	N/A	20	N/A	20	24	24	28	28
<b>SRAM Modules (64x4 or 32x8)</b>									
	N/A	N/A	N/A	N/A	8	N/A	10	12	16
<b>Dedicated Flip-Flops</b>	231	348	510	624	700	954	1,230	1,888	2,526
<b>Clocks</b>	2	2	2	2	6	2	6	6	6
<b>User I/O (Maximum)</b>	83	104	126	140	152	176	202	250	288
<b>JTAG</b>	No	No	No	No	Yes	Yes	Yes	Yes	Yes
<b>Packages</b>									
	PL84	PL84	PL84	PL84	PL84	PL84	PQ208	RQ208	RQ240
	PQ100	PQ100	PQ100	PQ160	PQ160	PQ160	RQ208	RQ240	
	VQ100	PQ144	PQ160	PQ208	PQ208	PQ208	RQ240	CQ256	
	PG100	TQ176	TQ176	TQ176	TQ176	TQ176	CQ208		
		PG132		PG176	CQ84	CQ256	CQ256		
				CQ172					

*Note 1: Logic gate capacity does not include SRAM bits as logic.*

## Ordering Information



**A complete product description is available from the Actel Web site ([www.actel.com](http://www.actel.com)), the Digital Library CD or an Actel Representative.**