

# Accelerator Series FPGAs: ACT 3 PCI-Compliant Family



## Features

- Up to 10,000 Gate Array Equivalent Gates.
- Up to 250 MHz On-Chip Performance.
- 9.0 ns Clock-to-Output.
- Up to 1,153 Dedicated Flip-Flops.
- Up to 228 User-Programmable I/O Pins.
- PCI-Compliant I/O Drivers.
- Four High-Speed, Low-Skew Clocks.
- Highly Predictable, Synthesis-Friendly Architecture Supports High-Level Design Methodologies.
- 100% Module Utilization with Automatic Place and Route Tools.
- Deterministic, User-Controllable Timing via DirectTime Software Tool.
- VHDL and Verilog-HDL Models for PCI Target, Master, and Bridge Functions.

## ACT 3 PCI-Compliant Devices

Device	A1460BP	A14100BP
Capacity		
Gate Array Equivalent Gates	6,000	10,000
PLD Equivalent Gates	15,000	25,000
TTL Equivalent Packages (40 Gates)	150	250
20-Pin PAL Equivalent Packages (100 Gates)	60	100
Logic Modules	848	1,377
S-Module	432	697
C-Module	416	680
Dedicated Flip-Flops <sup>1</sup>	768	1,153
User I/Os (Maximum)	168	228
Packages <sup>2</sup> (By Pin Count)		
PQFP	160, 208	—
RQFP	—	208
TQFP	176	—
BGA	225	313
Performance <sup>3</sup> (Maximum, Worst-Case Commercial)		
Chip-to-Chip <sup>4</sup>	97 MHz	93 MHz
Accumulators (16-Bit)	63 MHz	63 MHz
Loadable Counter (16-Bit)	110 MHz	105 MHz
Prescaled Loadable Counters (16-Bit)	150 MHz	150 MHz
Datapath, Shift Registers	150 MHz	150 MHz
Clock-to-Output (Pad-to-Pad)	9.0 ns	9.5 ns

### Notes:

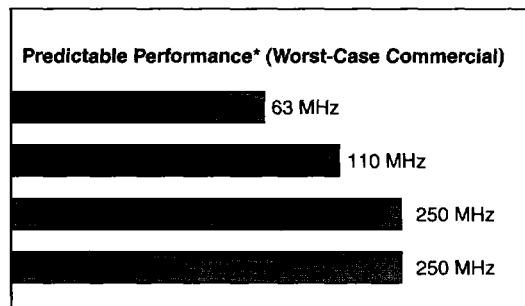
1. One flip-flop per S-module, two flip-flops per I/O module.
2. See Product Plan on page 3 for package availability.
3. Based on A1460BP-2, and A14100BP-2.
4. Clock-to-Output + Set-Up

## Description

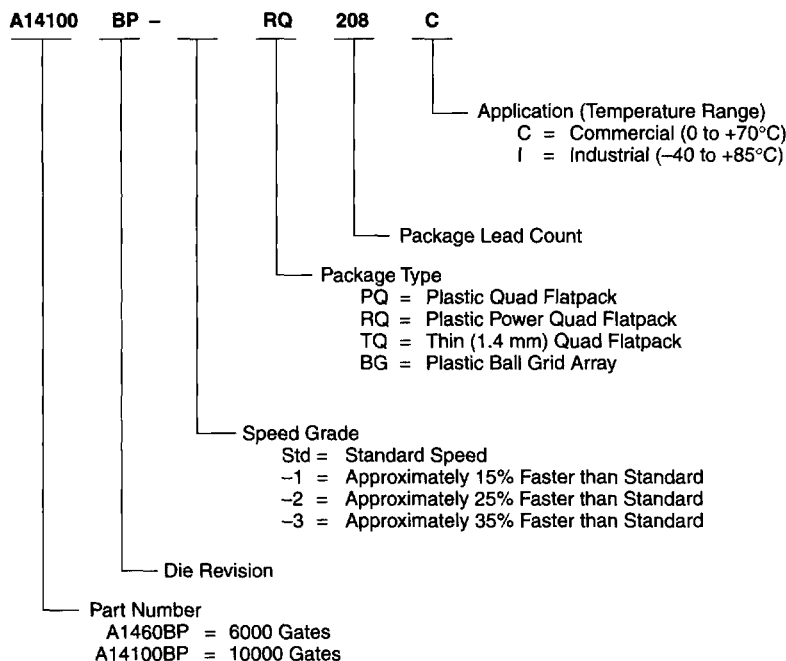
Actel enhanced the popular ACT 3 Accelerator Series family of FPGAs to include PCI-compliant I/O drivers. ACT 3 FPGAs are based upon Actel's proprietary antifuse technology and 0.6 micron CMOS process. ACT 3 devices offer a high-performance, PCI-compliant programmable solution. The ACT 3 PCI-compliant family delivers 200 MHz on-chip operation and 9.0 nanosecond clock-to-output performance with capacities spanning from 6,000 to 10,000 gate array equivalent gates. The PCI-compliant ACT 3 devices are denoted with a "BP" designator and are shown in the ordering information chart.

Actel's ACT 3 PCI-compliant devices provide a high-capacity, synthesis-friendly programmable solution to PCI applications. The following headings detail the pertinent PCI Local Bus Specifications along with the corresponding ACT 3 parameters. The section numbers in the notes denote the pertinent section in the PCI Local Bus Specification

version 2.1. ACT 3 devices comply 100% to the electrical and timing specifications detailed in the PCI specification. However, as with all programmable logic devices, the performance of the final product depends upon the user's design and optimization techniques.



## 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.**