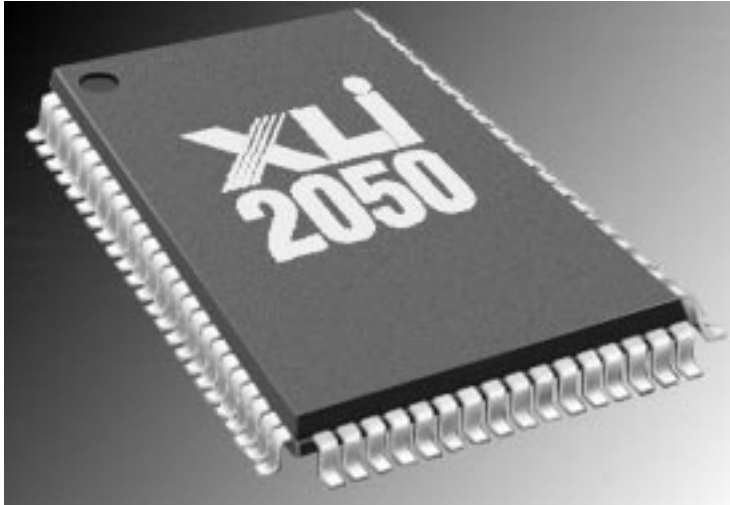




# Single-Chip Multi-Generation Laser Printer Enhancement The XLI-2050 SuperChip



## Applications

- Monochrome Laser Printers
- Color Laser Printers
- Multi-Function Devices
- High-Speed Workgroup Devices
- Digital Laser Copiers

## Super Enhancement

For the very first time, a single-chip addresses *all* of the image enhancement functionality needed by virtually *any* resolution laser printer, multifunction peripheral, laser fax, or digital laser copier. The XLI-2050 can support engine speeds up to 50 pages per minute at 600 DPI, independent of page description language, CPU, compression scheme, or host application. The SuperChip is a complete enhancement solution containing all the hardware required for a wide range of image enhancement needs. Key elements within the XLI-2050, illustrated in the block diagram on the following page, include: 1) a data source multiplexer, 2) Line Store memory, 3) three enhancement processors, 4) LUT memory, and 5) precision digital modulator.

## Features

- Text and Line Art Edge Enhancement
  - Smooths Jaggies and Effectively Doubles Resolution
  - Large Analysis Window for Superior Quality
- Single-Bit (Binary) Photo Enhancement
  - 144 Gray Levels
  - 141 Line Screen
- 2x High Resolution Rendering (Vertical and Horizontal)
  - 1200 DPI Printing on 600 DPI Engine
- Multi-bit (contone) Input Mode
  - Grayscale Mode Suitable for Digital Copy or PDL
  - Direct 8-Bit Data Path at 300 or 600 DPI
  - 256 Gray Levels
- Economy Print Mode For Reduced Toner Usage
- Resolution Conversion Edge Enhancement
  - Source Data at  $\frac{1}{3}x$ ,  $\frac{1}{2}x$  or  $1x$  of Engine Resolution
  - Print 200, 300, and 600 DPI on 600 DPI Print Engine
  - Ideal for MFP Fax Enhancement
- Two Source Data Input Modes
  - Serial Video
  - Parallel Video
- On-chip Precision Digital Modulator
  - 50 MHz Max Video Rate (at Engine's Native Resolution)
  - 3 MHz Min Video Rate
- Multiple Print Engine Resolution Support
  - 300 to 900 DPI (Native Resolution)
- Internal Beam Detection Synchronization
- Internal Line Store Memory Supports 13.65" Scan Line Length at 600 DPI
- 3.3 V Power Supply
- 80-pin Metric Plastic Quad Flatpack

## Edge Enhancement

XLI's Edge Enhancement improves the appearance of text and line art by eliminating "jaggies" to produce smooth, sharp edges. The quality of edge enhancement is dependent on the size of the window used to analyze the source data, the accuracy of the edge enhancement logic, and the precision of the modulator. XLI uses the industry's largest analysis window to generate the dot size and position information for the on-board modulator, which has sub-nanosecond precision. The result is the effective doubling of the resolution for the best Edge Enhancement in the industry.

For MFP and low-end applications, the XLI-2050 Edge Enhancement feature can also scale source data at