

**EPSON**  
EXCEED YOUR VISION

LASER  
TECHNOLOGY



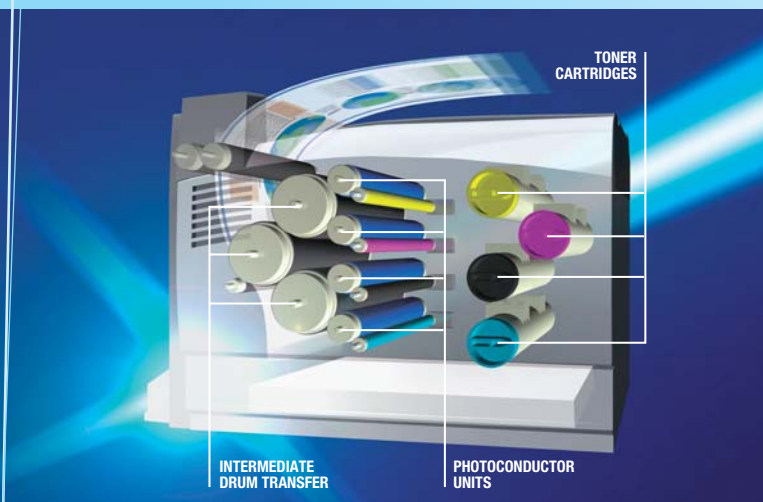
Epson Technology  
Advances

## Epson AcuLaser 4-2-1 Tandem Engine

One of the most significant advances introduced by Epson in the range of AcuLaser colour laser printers is a 4-2-1 Tandem print engine. In more conventional colour laser printer engines, each of the four toner colours (Cyan, Magenta, Yellow and Black) is processed and placed on the paper in a sequential operation. This process gives rise to two of the most compelling arguments against colour laser printing – time and colour registration. With the paper having to pass through the print engine mechanism four times – once for each colour – print times are up to four times longer than monochrome printers. Because it is extremely difficult to maintain the paper in a precise position for each pass, there are often inaccuracies in colour registration.

Addressing those issues directly, the Epson AcuLaser 4-2-1 Tandem print engine processes each of the four toner colours in parallel. Using a system of four intermediate photoconductor drums, two secondary transfer drums and a primary drum, the Epson AcuLaser 4-2-1 Tandem print engine is able to process each colour simultaneously, with the paper passing through the mechanism once only. This single operation results in colour prints with near perfect colour registration that are printed in a fraction of the time it takes conventional colour laser printers.

4-2-1 Tandem Engine

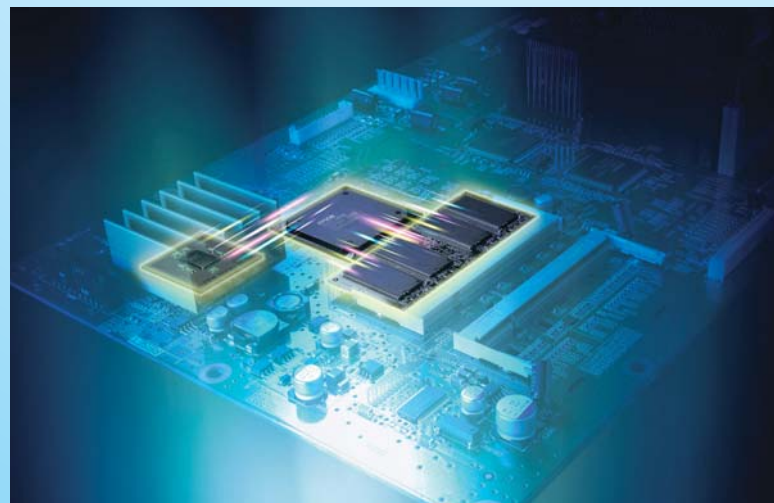


## On-Board Intelligence – The Epson ASIC

With the introduction of colour laser printing, one of the greatest challenges faced by engineers was minimising the time taken to process the enormous amounts of data contained within colour documents, especially those with graphics and photos. While some colour laser printers rely on the printer driver (which can impact noticeably on PC performance) or printer-resident memory (which alone, does little to improve print times), Epson developed the Application-Specific Integrated Circuit (ASIC).

Aside from being designed to process large amounts of colour print data quickly, the ASIC is used as a means of embedding further print performance enhancing software technologies developed by the Epson Software Development Laboratory. One such technology is Adaptive Data Compression, an advanced system that automatically and intelligently determines the most effective method of compressing and decompressing the different types of print data – text, photos, line drawings etc. The result is reduced print time and increased overall printer speed.

The Epson ASIC



## Distinguishing Elements – Epson AcuLaser Intelligent Line Screening Technology

Within the business environment, there is a strong preference for using colour printing to emphasise key points, aid information retention, generate enthusiasm and increase attention span. Countering this, are distractions that can be brought about by jagged-edged line drawings, incorrectly coloured photographs and “fuzzy” text.

By capitalising on colour printing technology advances made with its colour inkjet printers, Epson developed the AcuLaser Intelligent Line Screening Technology. Working in tandem with the on-board Epson ASIC, Intelligent Line Screening automatically distinguishes between photographic images, text and line drawings all on a single page. This advanced technology then alters the Line Screening and Colour Correction for each component in order to achieve beautifully gradated and coloured photographs, incredibly sharp text and smooth-edged line drawings.

Another key contributor to the Epson AcuLaser Colour Laser Printer print quality dominance is the Epson Colour Resolution Improvement Technology (RiTech). Based on Epson’s Monochrome RIT, RiTech utilises the precision dot placement capabilities of the Epson AcuLaser Fine Dot Control Technology to eliminate dotted or jagged edges in colour text and line drawings. This unique combination of colour laser printing technologies ensures even finely detailed areas are reproduced sharply, making charts, graphs and finely detailed CAD and schematics come alive with clear, crisp tones and lines.

## Epson AcuBrite Toner

An often overlooked component of the colour laser printer is the toner, yet it plays a crucial role in the definition, colour development, image quality uniformity and cost-effectiveness of the printer.

In stark contrast to conventional toner, which tends to produce irregular shapes, Epson has introduced the uniformly shaped AcuBrite Toner. With a uniform particle size, this new toner exhibits highly stable electrostatic properties, a major feature in achieving high resolution laser prints.

Wax is also an important consideration when it comes to laser printer toners. Epson AcuBrite Toner delivers:

- Even dispersion of wax and pigment in the toner
- Regular fusing of wax throughout entire print area for improved image quality
- Specially formulated colour pigment with high colour development. The result being vibrant colours and even wax distribution.

The issue of cost-effectiveness essentially comes down to a printer’s toner transfer efficiency. By virtue of adequate rounding, regular shape and superior charging characteristics, Epson AcuLaser Colour Laser printers using AcuBrite Toner deliver cost savings through significantly minimising the amount of toner wasted.



# Networking

In order to meet the high demands of networked environments, the Epson AcuLaser range includes printers with advanced networking technologies from sophisticated Web-based management tools to high speed network connections.

## EpsonNet WebManager

Designed to provide easy, browser-based monitoring, controlling, set-up and troubleshooting for all network-connected Epson printers, the EpsonNet WebManager software fully supports today's diverse operating environments, with support for Windows®, Macintosh® and UNIX platforms. Among the many functions included within the EpsonNet WebManager software, are:

- Device List: Searches for printers on the network and displays a list with current status
- Device Details: Facilitates changing printer settings
- Network Settings: Facilitates changing network interface settings
- Group Management: Aids in managing network printers more effectively
- Printer Driver Management: Lets the user download and update a printer driver through the Internet and easily install the printer driver on client PCs

EpsonNet WebManager also incorporates print log management tools that provide views of print logs and even monitor the status of consumables.

## Advanced Print Management

Incorporated within a number of business-specific networkable Epson AcuLaser Colour Laser printers is a range of advanced print job management features\*. When equipped with an optional hard drive, these printers deliver easy and centralised management of:

- Confidential job printing and storage for improved document security
- Job storage, improving document print version control
- Job reprint from storage, reducing network traffic
- Job verification for reduced job misprints

\* Features and functionality are model specific. Refer to individual Epson AcuLaser Colour Laser printer models on for precise model specifications.

## WRAP Transfer System

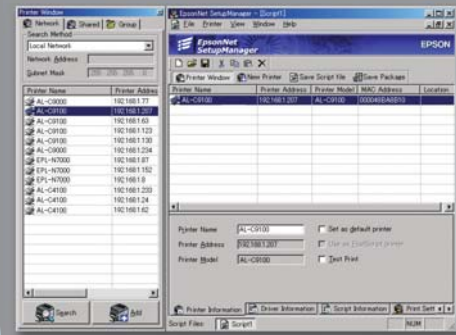
The Epson Wrap Transfer System is designed to address a typical problem in conventional laser printers that stems from three distinct issues:

1. A very small contact area between the transfer belt and photoconductor unit
2. The transfer belt itself being made from thin yet rigid material
3. Separate – and difficult to synchronise – drive systems for the transfer belt and photoconductor unit

The combination of these three issues means toner is actually scattered when it is transferred to the transfer belt, resulting in lowered image quality.

In order to achieve high quality prints, the Epson AcuLaser Wrap Transfer System features a belt that wraps around the photoconductor unit, ensuring a large contact area and eliminating any toner scatter. This absolute contact with the toner and photoconductor unit is further improved with a transfer belt material that is approximately six times the thickness and elasticity found in many other laser printer transfer belts.

In addressing the synchronisation between the photoconductor unit and belt, the Epson AcuLaser Wrap Transfer System features only one drive system, in which the transfer moves with the photoconductor unit, achieving complete synchronisation. This synchronisation ensures there is no shift in the print image during transfer, thereby making it possible to create high resolution colour and monochrome prints.



EpsonNet SetupManager

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