

# DIGITAL ICE - IMAGE CORRECTION & ENHANCEMENT

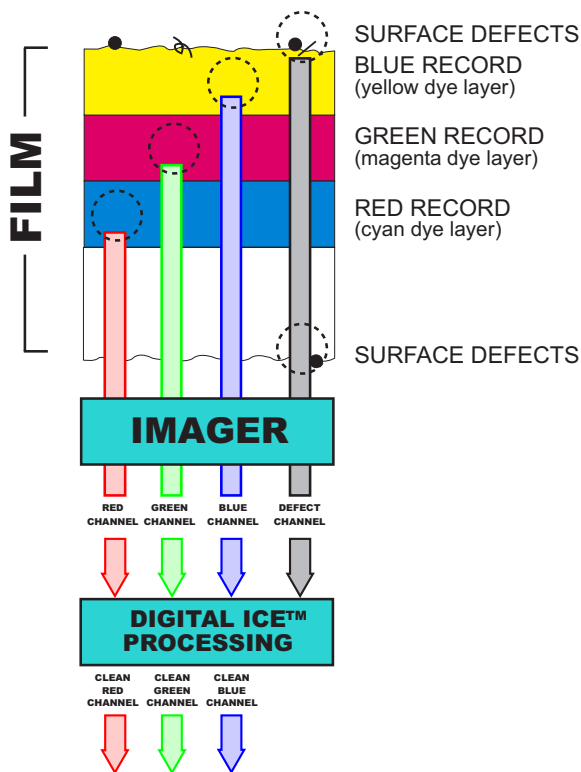
Once the surface-defect information is collected through the D channel, complex, proprietary algorithms are used to erase the defects without degrading the image. These algorithms accept Digital ICE four-channel RGBD as input to produce three-channel, RGB, surface-defect-free images as output. The three-channel RGB output resulting from the application of Digital ICE technology is like any other RGB image and can be used by higher-level applications without any special accommodation by the third-party software.

Implementation of the Digital ICE D-channel requires modifications to scanner hardware and firmware. Almost any scanner can accommodate the required modifications, usually with a very small impact on product cost.



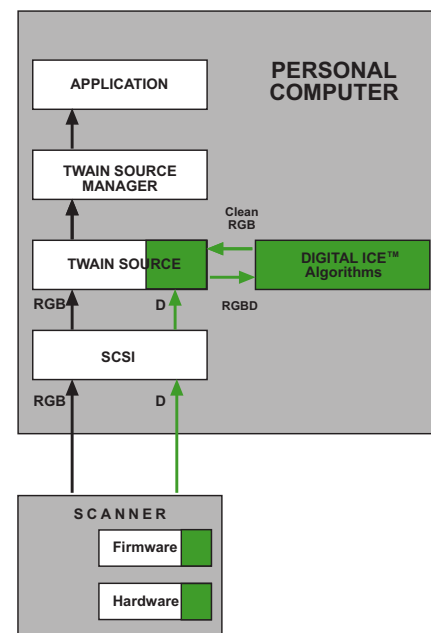
This negative was damaged by a dog chewing on it.

After using Applied Science Fiction's Digital ICE, dust and scratches were removed instantly!



## Typical Block Diagram Desktop System

(Digital ICE components are shown in green)



# DIGITAL ICE™ TECHNOLOGY FOR FILM

## TECHNICAL INFORMATION



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## INCREASED DEMAND FOR DIGITAL IMAGES

The worldwide growth of the PC industry, desktop publishing and the use of the Internet has dramatically increased the demand for clear digital images. Amateur and professionals alike manipulate digitized images to suit a multitude of needs from sharing captured memories with relatives and friends, to publishing and otherwise distributing images as a business.

To obtain digital images, users digitize conventional photographic negatives and slides using film scanners. Professional labs, mini labs, imaging service bureaus, photographers, pre-press businesses and desktop publishing operations spend a considerable effort keeping images free of defects.



The original had small scratches and was very dirty and dusty. **Digital ICE™** for film scanners automatically removed the many distracting surface defects to provide a clean, clear image.



### PROBLEMS GETTING THE BEST IMAGES

During the routine handling of photographic film, the emulsion and base can receive surface scratches, smudges and fingerprints, which appear in the final image. Conventional image correction methods include cleaning and sometimes printing the film in a wet gate.

In order to correct image artifacts, scratches, and surface defects, numerous software applications have become available for amateur and professional use. Though these solutions produce satisfactory results, their implementation is labor intensive, often resulting in pricing that make such efforts prohibitive, particularly for the amateur consumer.

## DIGITAL ICE - IMAGE CORRECTION & ENHANCEMENT

### *Announcing the End of Dirty Images*

**Digital ICE** eliminates the effects of scratches, dust, fingerprints and even mold when scanning negatives, positives or slides. Unlike competitive technologies, Digital ICE does not remove the detail content of the image. This is accomplished by obtaining information about the nature and location of surface and near-surface defects as an image is scanned.

During the typical scanning process, red, green and blue image information is gathered utilizing RGB channels. Digital ICE scanning uses a fourth channel, referred to as the defect or "D" channel, to collect the defect information.

The negative of this image of Barbara Jordan, former Texas congresswoman, was taken over 25 years ago. The negative has several defects including a large scratch.



before



surface defects

This shows the surface defects as detected by Digital ICE.



after

What would normally take hours is done automatically and instantaneously with Digital ICE.