



Press Release

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FOR IMMEDIATE RELEASE

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New UK Sales Channel for Video Enhancement Software

Kane Computing Ltd (KCL) have signed a distribution agreement for the UK and Northern Ireland with Apical Ltd to sell the *iridix*[®] range of video enhancement software, based on Apical's proprietary Retina-Morphic image processing algorithms.

Apical have developed a range of products designed for different imaging applications and hardware platforms. Each consists of an image processing module, which takes an input image or video stream and transforms it using Apical's Retina-Morphic Processing algorithms. For the device developer, the modules have the key advantages of compactness, efficiency, ease of integration and high image quality. Including an Apical module inside an imaging device lets the end user see the best results the device can achieve, from producing beautifully balanced memory-true images on consumer video devices, to revealing hidden details in security, medical or industrial applications.

The *iridix*[®] range of products provide space-variant Dynamic Range Compression, non-linear Colour Correction, and fine detail preservation and enhancement. This combination of technologies enables complete optimization of imagery between source capture and display, without loss of detail in any region or tonal range. In addition, Apical's Noise Reduction products incorporate both motion-compensated temporal noise reduction and adaptive intra-frame noise reduction/deblocking technology.

These products are available as hardware cores or embedded software with libraries available for Texas Instruments DM642 DSPs, plus Xilinx Spartan and Virtex FPGAs.

Richard White, Managing Director of KCL, was very excited to be able to provide their extensive DSP clientel with this new technology to enable imaging device performance to be enhanced beyond anything possible previously for applications such as still cameras, camera phones, film scanners and PC post-processing.

Michael Tusch, Managing Director of Apical said: "We are very pleased to have engaged with Kane Computing and we see this relationship as a key to enabling us to provide this innovative technology to UK-based imaging device developers."

Incorporating Apical's technology based on Retina-Morphic Processing into a device enables it to adapt to different illumination conditions in the same way as the human visual system.

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This is useful for two reasons. First, because we often want images which look close to how we see the world. And secondly because image capture devices have a much higher dynamic range than do displays or printers. Previous techniques, such as gamma or histogram correction, lose important scene detail between capture and display, especially in dark areas. In contrast, when our eyes send images to our brain, powerful dynamic range compression is applied by the cells of the retina, resulting in a stream of images of extraordinary quality. It is now possible to deliver the same kind of high-quality processing compactly in an imaging device.

Because Retina-Morphic Processing mimics the way human eye-brain compresses dynamic range, it is a very powerful technique for balancing contrast while always retaining a natural "artefact-free" appearance. Apical's product range known as *iridix*[®] implement this processing in a compact, efficient form for real-time processing on DSPs and FPGAs.



Typical contrast enhancement (dynamic range compression) technologies are fixed and uniform. A typical example is gamma correction. *iridix*[®] contrast enhancement behaves like the human visual system: it is adaptive, and it is spatially-varying. In other words, it automatically calculates a different curve transformation for each pixel in the image, based on an analysis of the scene content. As a result, images processed using this technology are continually in balance across the entire image. Contrast and detail is preserved or enhanced both in dark and bright areas and true colour is preserved. Because the processing mimics the human visual system, the images which are produced automatically look natural, without the need for complex calibration or parameterisation.

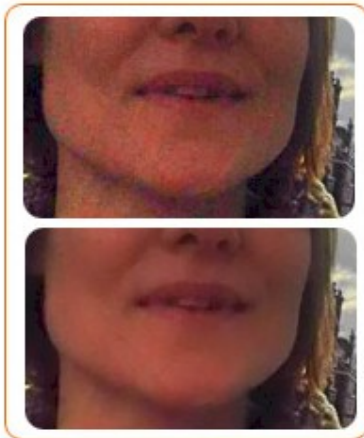
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In order to produce the best possible images on different displays, colour correction is required. In particular, the colour distribution of the source image or video must be matched optimally to the colour gamut of the display, if loss of colour and colour clipping is to be avoided. Apical has introduced the first space-varying non-linear colour correction module as part of its iridix image processing library. By applying different colour correction in different regions of an image, colours can be perfected region by region, automatically.



A central limiting factor in the performance of all imaging devices is the noise level of the original image or video stream. This is typically a combination of a number of sources:

- »Sensor noise
- »Digitisation noise
- »Compression noise

Using its platform Retina-Morphic technology, Apical has developed a powerful noise reduction technology, based on a multi-dimensional correlation model.

It is fast, efficient, and strongly improves images and video showing:

- »Small-scale random noise (sensor/digitisation)
- »Large-scale noise (JPEG/MPEG compression block noise)

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Digital images frequently require sharpening due to loss of fine detail due either to the limitations of optics, or because of other image processing.

Apical has developed a unique technology for controlling fine detail, leading to efficient, high-quality sharpening and local contrast preservation filters.

The images to the left show the effect of applying non-linear contrast correction to a sample image with detail at the level of one pixel. The first result shows the normal effect (for example, gamma correction). The second shows the effect of fine detail preservation.

About Apical

Apical (www.apical-imaging.com) specialises in advanced image processing. Its key technology is based on research into human vision and its products enable electronic devices to "see like the eye". We have developed powerful dynamic range compression technology which produces memory-true images whatever the capabilities of the image capture and display device. Our products are designed for implementation on devices such as cameras, scanners, displays and printers, and we maintain a technical team able to offer full support to our OEM partners.

About Kane Computing

KCL (www.kanecomputing.co.uk) has been providing Image Processing, DSP and high performance computing products for use in industry, education and research since 1987 and is a Texas Instruments Third Party Partner specialising in consultancy and advice on TI development tools/platforms and image processing applications. KCL have extensive knowledge and experience of providing video compression solutions for many industries particularly for digital video security and high quality broadcast applications. KCL has a policy of continual improvement and operates its business in accordance with the requirements of ISO9001:2000.

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