

9:30am - 11:00am

THE SIXTEEN MEGAPIXEL CHALLENGE Part one THE CONTENDERS

Six million pixels have been the benchmark of professional digital backs for the past two and half years, producing pictures of superb quality using Philips CCDs. Now the pixel count is about to more than double from six to sixteen million in a single leap, with three manufacturers about to release 16 megapixel pro backs. Kodak claims that, 'the results [from its new DCS Pro Back] are actually superior to film'. Is this true? Do we really need this extra resolution?

We bring you camera designers from the three contenders – Kodak, MegaVision and Phase One – to specify in detail the functionality of each of their forthcoming products.

We bring you CCD experts from Kodak (16MP) and Philips (6MP) to explain the differences between the sensors. Is it just as simple as 'more pixels must be better' or is quality tucked away in other sensor design and fabrication parameters?

We bring you early users of the new products to share their experiences where it matters most – at the shoot.

Ken Boydston
President and CEO, MegaVision



QUITE A FEW PRETTY BIG PIXELS

MegaVision have had quite a few 'firsts' in their time. Now they are about to introduce one of the first 16MP backs.

Ken Boydston is president of MegaVision, Inc. MegaVision developed and installed the first professional commercial digital camera for studio use in 1990 and continues to advance the state of the art of professional digital photography.

Ken's early work after receiving a BS in Physics from Harvey Mudd College in 1975 was in automated inspection, measurement, and control systems. A requirement to replace human eyes with a computer to perform a visual inspection led to imaging and MegaVision. Ken has participated in MegaVision's technical development since its founding in 1983 and has contributed to numerous innovations and advances in the art of digital imaging.

Carsten Steenberg
CEO Phase One United States, Inc.



LIGHTPHASE H20

Phase One has been a world leader in digital photography since 1993 and proudly states that it has over 5000 units installed world-wide. It's hardly surprising, then, that Phase One is one of

the first manufacturers to introduce a 16MP back. Carsten Steenberg tells us what it offers.

Carsten Steenberg, President of Phase One United States, Inc., made the first serious commitment to bring digital photography to the American Market in early 1995. Phase One began with three employees and has grown to over thirty in five years with more than 55% of worldwide sales. This success story is no surprise. Inc. Magazine awarded him for being one of the top 200 privately owned companies to have rapid, successful growth in five years. Carsten Steenberg has a Masters in Science and Economics and has always been an avid photographer, having his first digital camera/frame grabber in early 1982.

Steve Noble

Development Manager, Professional Digital Cameras, Eastman Kodak Company



KODAK DCS PRO BACK SYSTEM ARCHITECTURE

This paper will "raise the hood" on the new DCS Pro Back 16MP Digital Camera System.

An overview of the CCD and system electronics architecture, DSP (digital signal processor), in-camera firmware, host software, and color management will be presented. The inside track from the real expert with the gift of being able to explain everything in words users can understand.

Stephen Noble joined Kodak in 1984 with a Bachelor of Science degree in Electrical Engineering from the Rochester Institute of Technology. Early assignments included the design and development of film scanners and digital video capture systems. In 1993 he joined the DCS camera design group as a Senior Development Engineer, and contributed to the design of five Kodak DCS camera systems. In 1995 he was appointed Chief Engineer of the DCS520 program, and in 1997 was promoted to Development Manager of Kodak Professional Capture Engineering. Since 1998, he has been the Advanced Development Manager of Kodak Professional Capture Engineering. He holds six patents related to electronic imaging technology.

11:00am - 11:20am - Coffee

11:20am - 12:10pm

THE SIXTEEN MEGAPIXEL CHALLENGE Part two THE SENSOR DESIGNERS

Brian Benamati

Product Engineer, Image Sensor Solutions Eastman Kodak Company



FROM PICTURES TO PIXELS – A 16 MILLION PIXEL CCD IMAGE SENSOR FOR PROFESSIONAL DIGITAL CAMERA APPLICATIONS

Brian Benamati explains the 16 million full-frame color CCD image sensor that has been designed for photographic digital still camera applications. The presentation studies the process of converting key customer requirements into the design and processing of a high resolution image sensor. Specifically, critical performance factors such as dynamic range, image noise and spectral response are examined. Finally, a chip maker's perspective is shared regarding innovative technologies that can be implemented to provide the best image sensor solutions 'in silicon'.

Brian L. Benamati received BS and MS degrees in Electrical Engineering from Rochester Institute of Technology, Rochester NY. He joined Eastman Kodak Company in 1980 and through 1991 worked as a Process Engineer and Process Integrator involved with the development of CCD image sensors. From 1991 through 1997 he was the Fabrication Manager in the Microelectronics Technology Division and in 1998, he became a Product Engineer for Full Frame Color CCD imager sensors. He is presently a Product Marketing Engineer for Kodak's Image Sensor Solutions division, concentrating on applications for digital still cameras.

Prof. dr. ir. Albert J.P.Theuwissen
R & D Manager Philips Semiconductors Image Sensors



WHAT YOU SEE IS WHAT YOU GET?

Are numbers printed in leaflets and brochures telling you everything you can expect from an image sensor? Are figures quoted on cameras revealing all the camera characteristics? The answer is a very simple: No! This presentation will give some interesting, very up-to-date examples on, 'There's more to the picture than meets the eye!' (Neil Young)

Prof. dr. ir. Albert J.P. Theuwissen has already been in the solid-state imaging area for twenty five years. Since 1983 he has been with Philips and, since 2001, a part-time professor at Technical University of Delft. He has been involved in many key developments by Philips, including stitchable sensors for professional digital cameras; dynamic pixel management for broadcast applications; technology for HDTV images; frame-transfer with small storage for consumer still applications and the first CMOS imagers at Philips, etc.

12:10pm - 1.00pm

THE SIXTEEN MEGAPIXEL CHALLENGE Part three EARLY USER EXPERIENCE

Joseph Cartright

Photographer, Streetlight Digital Studios



THE PHASE ONE H20 IN USE

Why 16 megapixels? Workflow. Color Consistency. Completing the creative process.

Joseph Cartright has been in the digital technology arena for about twenty years. He originally studied avionics and then segued into telecommunications and data networking. Requiring creative release he has been shooting professionally for over six years. His present client list includes: Victoria's Secret, eHalston and Ralph Lauren. He also is a spokesperson for Apple computers on their 'Going Digital' seminars.

Helene DeLillo

Digital Imaging Artist, Dancing Icon Inc



THE KODAK DCS PRO BACK IN USE

Digital photography is the wave of the future and Helene DeLillo will discuss the newest introduction into the market place and what it was like shooting fashion and portraits with the Kodak DCS Pro back.

Helene DeLillo is a digital imaging artist and photographer based in New York City. Her digital photographs have appeared in the pages of Rolling Stone, Entertainment Weekly, and Time Digital as well as on the covers of Digital Camera and Studio Photography & Design magazines. Her company, Dancing Icon Inc., provides digital imaging consulting and designs digital photography studios. They work with many high profile clients including some of the most demanding in the beauty, fashion and entertainment industries. Dancing Icon Inc. was recently hired by Sothebys to design their Digital Photography Studios where they photographed and uploaded 14,000 images in six weeks. More info at <http://aspn.apple.com/stories/delillo/>

1:00pm - 2:00pm - Lunch

2:00pm - 3.30pm

DIGITAL IMAGING STATE OF THE ART

Top designers of the most important and up-to-the-minute hardware and software share the secrets of their new features and design philosophy and functionality. The latest. Here first. In person. In depth.

Bruce Totty

Co-founder and Senior Vice President, Silicon Film Technologies, Inc.



HOW TO TURN YOUR FILM SLR INTO A DIGITAL CAMERA

(e)Film - EFS-1 is a digital imaging system that turns your 35mm film SLR into a digital camera. Just drop the (e)Film cartridge into your film SLR and start shooting digitally. The SLR camera you've known for years has just become digital. First mooted three years ago, at last it can now be seen working.

Bruce Totty has been vice president of sales and marketing since the company's organization in August 1998. In a career focused on bringing technology to market Mr. Totty developed and executed the strategy to create and fund new business enterprises from Irvine Sensors Corporation's (IRSN NASDAQ) core technologies, Silicon Film Technologies is the third company in that strategy. Redhawk Vision Inc, MicroSensors and iNetworks are outgrowths of those initiatives. Prior to joining Irvine Sensors, Mr. Totty held marketing and technical positions at Harris Corporation, General Motors' Hughes Electronics and Photo Sonics, an industry leader in providing high-speed (16, 35, and 70mm) film cameras. He holds a bachelor of science degree in engineering from the University of Florida.

Carl Jürg Koch

Joint Managing Director, Sinar, Switzerland



HIGH RESOLUTION FROM-CAPTURE TO PRINT

Digital imaging is, in the near future, directly competing with film in two quite different areas; large studio setups (cars, furniture etc.) and fashion. This presentation will show how new technologies in direct digital capture can cope with the high resolution demands (400 MB +) of large studio setups under difficult lighting situations (mostly continuous light) and with the speed, portability and quality constraints of the professional fashion shooters. A look at a new way of preparing images for reproduction will give some input for the shooters who need to get their work printed on offset.

Carl Koch was born in Pacifica CA in 1966. His family returned to Switzerland where his father was busy

changing Sinar from a small operation into a factory with its own production facilities. Carl went to school in Switzerland but returned to the US where he obtained an MBA from the University of South Carolina in 1991. Back in Switzerland he joined the family business, taking over responsibility for marketing and sales. He took the Swiss government theoretical test for professional photographers and enjoyed challenging commercial photographic assignments before taking over as Joint Managing Director of the company.

Steve Noble

Development Manager, Professional Digital Cameras Eastman Kodak Company.



THE POWER OF PIXELS – THERE IS NO SUBSTITUTE

This paper will discuss the importance of optimizing the CCD's optical format and providing the right balance

between pixel size and number of pixels, while holding system costs in check (the correct trade-off balance). Also explained will be that, given a system design triangle with end-points relating to Cost – Speed – Resolution, the system designer can only pick two out of three. Numerous system simulations will be shown to illustrate these points.

For biographical details please see 'The Sixteen Megapixel Challenge – part one – The Contenders', above.

Tadashi Nakayama

Manager, Digital Product Engineering, Nikon Inc.



'UNDER THE HOOD' OF THE NEW NIKON D1H AND D1X

Two years after the announcement of the Nikon D1 Digital SLR, Nikon is said to have sold more digital SLRs than all

the other manufacturers put together. It has now announced two variants - the D1X (high resolution) and D1H (high speed). Tadashi Nakayama explains what's inside these two new models.

Tadashi Nakayama began his career in Nikon's Design Section for imaging products in Tokyo in 1986. He relocated to the US four years ago, where he is currently working in the Strategic Planning and Engineering department His responsibility is to identify, study, define and plan for product and systems applications for digital imaging, including scanners and digital cameras.

3:30pm - 4:00pm - Coffee

Seybold Seminars Boston 2001 Digital Imaging Day