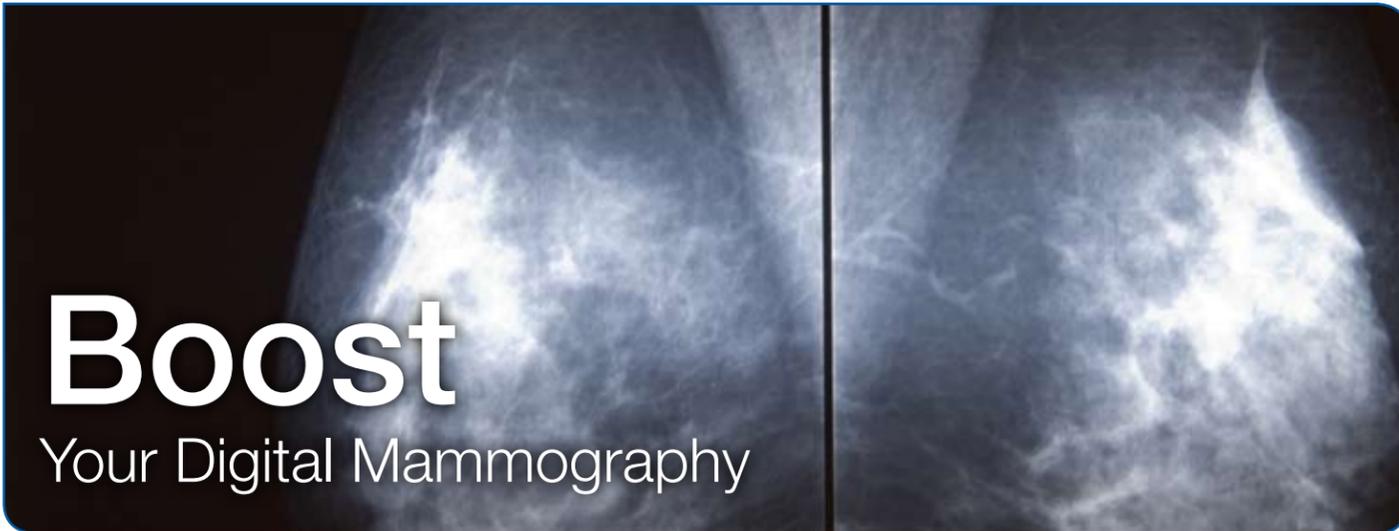# GRAPHICS Pulse

Matrox Graphics, Inc.   Delivering innovative multi-display solutions since 1976.   November / December 2009

Boost
Your Digital Mammography

As a radiologist, your livelihood, not to mention that of your patients, is often related to how quickly and accurately you are able to review high resolution medical images. Your choice of tools is critical, from your mammography software package to your displays and display controller board. Xenia Series delivers the leading-edge features and performance you demand in a display controller board, with the simple installation, stable drivers and flexible configuration options you've come to expect from Matrox.

In any workstation, the display controller board is responsible for delivering what you see on screen. High resolution mammography images can be slow to load, so the board's performance is vital. "The handling of 10 bit radiographic images is obviously a key feature of Matrox products, in addition to powerful graphic processing capabilities," says Dr. Frédéric Banegas, PhD, chief technical officer, Intrasense SAS.

Matrox Xenia Series also offers additional performance gains in the form of on-board image processing support. Aspyra Product Manager, Bill Culton exclaims, "We are using the large on-board memory to very quickly scroll through large stacks of images. Tracking functions like real-time window level adjustments, magnification, and panning are performed immediately. I mean, without the draw delays you typically see on large high resolution monitors used for mammography."

Down-time is not an option, and a simple board installation with stable, reliable drivers is always appreciated. Xenia Series is designed to support up to three high resolution digital displays from one board, avoiding driver conflicts that can occur between multiple boards in a system. Add two Xenia boards in a single computer with a single driver, and up to 6 displays can be configured for a high-end mammography visualization system.

Quest Vice-President, Bill Greenblatt notes, "Installation of video cards tends to be our number one source of tech support calls. Xenia is amazing—intuitively it knows just what to do. I do not recall even one call for help installing this card." Stan Swiderski, NEC Display Solutions Business Development Manager agrees, "The unique 3 digital output design makes configuration very easy for our customers."

"Tracking functions like real-time window level adjustments, magnification, and panning are performed immediately […] without the draw delays you typically see on large high resolution monitors used for mammography."
Bill Culton, Aspyra

Since display brands and configurations differ from one station to the next, Xenia Series is designed to be flexible. "We are currently selling Totoku, Olorin and Barco monitors and all the monitors can be used together with the Matrox Xenia board. Because Xenia Pro covers all monitor resolutions we only need one board for all the display solutions", says Martin Jensen, sales executive with Fineman A/S.

Combining Xenia Series DLC™ technology with display calibration software from Qubyx also provides the ability to bring displays to well within luminance uniformity standards, in under 2 minutes.

You need the best quality tools to help you make accurate diagnoses in a limited time. Steven Stevens, Avnet Country Manager, suggests, "The ease of use and ease of installation are highly appreciated. Partners who do a thorough Total Cost of Ownership (TCO) calculation will certainly go the Xenia way." Jim Lindsay, Technical Product Manager at Ampronix concurs, "We've sold many of these display controller boards, and have several institutions that are evaluating them. The feedback has been exceedingly positive across the board."

Matrox Xenia Series was designed from the ground up, not as a commercial off-the-shelf product, but a necessary radiology solution to meet or exceed the requirements of medical imaging professionals. We invite you to visit our partners at RSNA 2009 and decide for yourself.

See Xenia at RSNA

Partner	Location
Ampronix	North Building, Hall B : 9118
Aspyra	South Building, Hall A : 3021
Chili	Lakeside Center, Hall D : 1632C
EIZO	South Building, Hall A : 4019
MediDOK	Lakeside Center, Hall D : 1832D
Merge Healthcare Software	South Building, Hall A : 5619
NEC Display Solutions	South Building, Hall A : 5665
NDS Surgical Imaging	South Building, Hall A : 3816
Rogan-Delft	North Building, Hall B : 8909
Telemis	South Building, Hall A : 2903
Three Palm Software	Lakeside Center, Hall D : 1506
Quest International	North Building, Hall B : 7303
VISUS	South Building, Hall A : 3701

"With the Matrox Xenia Pro, we can offer our customers outstanding graphics performance. This fits with our strategy to deliver the most efficient workflow experience for digital mammography."
Jose Abellan-Martinez, Managing Director, Image Diagnost

Extend the life of your PACS Workstation

A quick and intuitive installation may be all it takes to upgrade your PACS workstations with leading-edge features and hardware-accelerated performance. Designed for medical imaging professionals, one Xenia Series board drives up to three high-resolution digital displays from a single PCIe slot (often all that is available in a standard workstation).

Monitor calibration is vital across the enterprise, yet many displays lack accurate internal calibration capabilities. In less than 2 minutes, a Matrox Xenia Series board provides a multi-point calibration using Qubyx PerfectLUM software and an external sensor.

When loading high resolution medical images, strong, reliable performance is a must. According to Bill Greenblatt, president at Quest International, "Xenia measures about six times faster at 2D operations than the MED cards that we have been specifying for years." Aspyra's product manager, Bill Culton, agrees, "Even without using the advanced medical functionalities available on the Xenia Series, it is significantly faster than the MED Series. There is no comparison!"

A quick and intuitive installation is another plus. Menno Timmer, product manager with Rogan-Delft, claims, "The ease of installing the Xenia boards surprised us in a positive way. Never before did it take so little time to prepare our systems […]. A single board solution, and therefore single driver solution, rules out any possible driver conflicts."

Software developers can add leading edge features to their applications, upgrading older workstations with newer technologies and accelerated performance. FENICS CEO, Jérémy Clech notes, "The Matrox Xenia Pro board dramatically reduces the development process by providing high-level libraries and native C# example source and executables for rapid development."
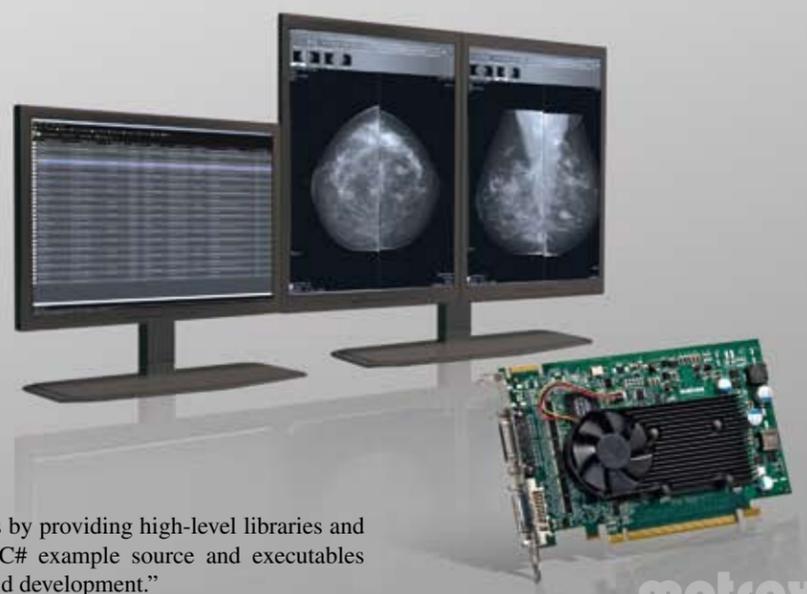
matrox

Display calibration more precise
with Matrox Xenia Series
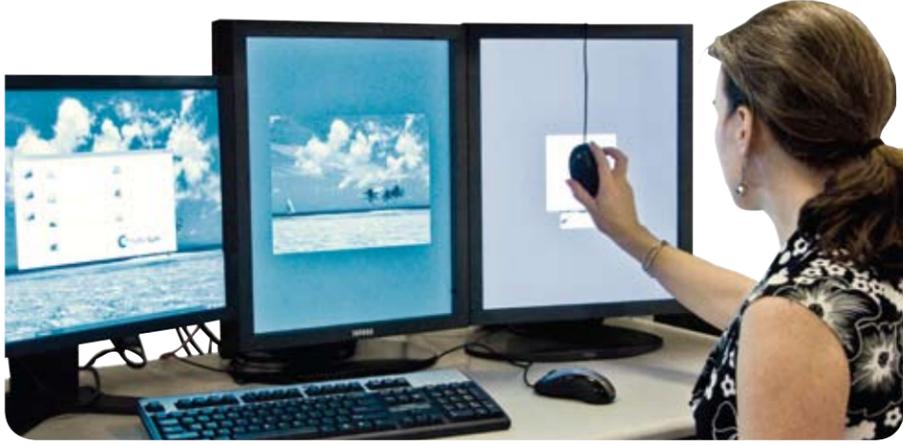
Display luminance uniformity is of greatest concern in mammography, and worldwide, luminance uniformity is becoming adopted in more countries to enhance and accurately perform patient diagnosis. A display which can be corrected to reduce luminance uniformity errors will display medical images with greater precision and conformance to medical display standards as developed by AAPM, DIN and JESRA, to name a few. A

recent white paper from QUBYX Software Technologies reveals that Xenia Series display controller boards together with their calibration software offers an advantage over display calibration using consumer off-the-shelf boards and/or hardware calibration performed within the display.

A LUT is a hardware device that may be included in either a board or a display and used to store a correction or transformation

table in order to make appropriate corrections between input and output levels, so that compensation is performed for the display to adequately render an image.

Matrox Xenia Series boards with programmable 8, 10 and 13-bit onboard hardware LUTs offer a higher number of input addresses than consumer off-the-shelf 8-bit graphics boards and a higher number of output values than most displays.

Each entry represents one color and/or gray level and stores one output data level. A higher number of input addresses provides more shades in color or gray which can be displayed by the system. A higher number of output values provides more precision in luminance output (smaller, more detailed or refined steps).

Matrox Xenia Series boards with programmable 8, 10 and 13-bit hardware LUTs offer a higher number of input addresses than consumer off-the-shelf 8-bit graphics boards and a higher number of output values than most displays. Thanks to Xenia's balanced relationship of 8192 input addresses and 8192 output values, Qubyx PerfectLUM calibration application is able to perform delicate corrections without any loss of data while guaranteeing full dynamic range. The Matrox Xenia board has a relative error of only 0.006103515625 % due to its high number of LUT input addresses and relationship to LUT output values. As a result, the luminance output is more precise with the Matrox Xenia Series board and closer to (and in many cases exactly that of) the DICOM GSDF or CIE L* target luminance reproduction.

Extracts from white paper: "Achieving Medical Industry Display Standards Using Advanced Display Controller Boards and Empowered Calibration Application Packages for Medical Imaging" QUBYX Software Technologies LTD - Copyright 2009. Used with permission.

Rogan Delft gives Matrox the thumbs up

Excerpts from an interview with Menno Timmer, Product Manager at Rogan-Delft

George Rigas (Matrox Graphics): Rogan-Delft introduced the first true Microsoft® Windows® XP 64-bit PACS solution several years ago. How has the 64-bit application been received?

Menno Timmer (Rogan Delft): There is an immense interest in 64-bit applications. Due to the increased data size and image processing demands, 32-bit systems reached their limits in accessible memory. With multi-core technology and 64-bit OS becoming common goods, servers and server-based solutions have an opponent again.

GR: The typical three-display set up does not appear to be disappearing, despite large single 4MP display solutions being offered. What advantages do you see with

the three-display setup?

MT: Although our solutions are hardware independent and can cooperate with all possible hardware configurations, I think that individual displays will remain the most cost effective solution.

GR: Zillion is a great new product suite. At ECR 2009, you demonstrated Zillion using Matrox Xenia Series to power your high-end stations – can you explain your choice?

MT: First of all, Matrox has proven to be a reliable partner providing stable products that our service partners can rely on. Xenia is the board our partners have been waiting for, an all-in-one solution perfectly suited for the highly demanding work environment found in a radiology department.

GR: At Matrox, we see the need for simplicity. Each Xenia Series board is designed to drive

up to three high-resolution digital displays, so only one board is required for the typical radiology 3-display set-up. How can you explain this benefit to your end users?

MT: The ease of installing the Xenia boards surprised us in a positive way. Never before did it take so little time to prepare our systems before a show. The single video board solution and therefore single driver solution rules out any possible driver conflicts. The new, simplified, configuration tool reduced set up time even further. Since it's a single slot solution it has a small footprint. Speaking of footprints, it also reduces power consumption so you might want to put a green label to it.

GR: Is there something that Matrox Xenia does not address for you?

MT: No, at the moment, we are fully satisfied with Xenia.

"Xenia is the board our partners have been waiting for, an all-in-one solution perfectly suited for the highly demanding work environment found in a radiology department"

Menno Timmer,
Product Manager, Rogan-Delft

Rogan-Delft B.V., the first PACS company in the world and the winner of several Frost & Sullivan Awards, is one of the major innovators in the market of the PACS solutions. With the introduction of the Zillion suite, Rogan-Delft offers healthcare professionals a complete infrastructure including RIS, PACS, and XDS to improve patient care in the radiology department and beyond.

About Matrox Graphics, Inc.

Matrox Graphics is a leading manufacturer of graphics solutions for professional markets. In-house design expertise, top-to-bottom manufacturing, and dedicated customer support make our solutions the premier choice in industries that require stable, high-reliability products. Founded in 1976, Matrox is a privately held company headquartered in Montreal, Canada, with representation and offices in the Americas, Europe, and Asia.

Matrox display controller boards for medical imaging offer a wide range of display output options, resolution capabilities, and features to suit the demanding needs of medical imaging professionals. Matrox Xenia is the first native PCI Express board with all–digital triple-monitor support in a single-slot and the built-in flexibility to drive practically any known medical or non-medical display configuration.

For more information and regular updates on Matrox products, visit www.matrox.com/graphics

Seymour & Dumore

Dr.Dumore, what do you have here? That's some supercomputer!

It's our new high-end digital mammography workstation with four 5MP displays.

All we had to do was install two Matrox Xenia Pro boards to drive up to six displays.

How simple!

matrox®