

EureCard™

**NEW** DOMINO™ series

*Analog image acquisition boards with perfect digital quality*

P R E L I M I N A R Y



D3™  
TECHNOLOGY



DOMINO Harmony™ – DOMINO Melody™

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**EURESYS™**  
Excellence in vision

# EureCard™ DOMINO™ series

The Domino boards are the Euresys' frame grabbers dedicated for **analog image acquisition**. The Domino series boards support any system function associated to industrial acquisition, such as **asynchronous reset**, **exposure** and **strobe control**.

The new Domino series is based on a innovative proprietary technology bringing the analog acquisition to the highest quality level. This technology is named **D<sup>3</sup> Technology\*** for Digital Domain Decoding. D<sup>3</sup> is a Euresys technology applicable to all analog cameras. It delivers a perfect digital image with the benefits of a proven analog environment: low-cost, reliable cabling and connections, smallest cameras, low power ...

Domino Melody and Domino Harmony are based on this D<sup>3</sup> Technology\* offering unequalled signal stability and image quality to the analog acquisition.

**Domino Melody** is a frame grabber acquiring images from one monochrome analog camera. **Domino Harmony** is a two-camera frame grabber, acquiring images from one RGB or two monochrome analog cameras.

The Domino series boards come with the **MultiCam driver**, which provides a comprehensive way to specify the camera and system features. MultiCam exposes a driver API (Application Programming Interface) defining a uniform acquisition control layer for all Euresys' frame grabbers. Domino boards and MultiCam are compatible with **eVision**, the image analysis library from Euresys, offering an extended set of functions optimized for machine vision applications.

	<i>DOMINO Iota</i>	<i>DOMINO Melody</i>	<i>DOMINO Alpha 2</i>	<i>DOMINO Harmony</i>	<i>DOMINO Gamma</i>
Form factor	32-bit, 33 MHz PCI	32-bit, 33 MHz PCI Low Profile	32-bit, 33 MHz PCI	64-bit, 66 MHz PCI	32-bit, 33 MHz PCI
Standard	CCIR / RS170 Non-standard	CCIR / RS170 Non-standard	CCIR / RS170 Non-standard	CCIR / RS170 Non-standard	CCIR / RS170 Non-standard
Signal	Analog	Analog	Analog	Analog	Analog
Single-tap	1	1	2	2	3**
Dual-tap	-	-	1	2	2**
RGB triple-tap	-	-	-	1	1**
Progressive scan	X	X	X	X	X
Max clock frequency	32 MHz	40 MHz	32 MHz	40 MHz	40 MHz
Area scan	X	X	X	X	X
Frame buffer	8-Mbyte	16-Mbyte	8-Mbyte	32-Mbyte	16-Mbyte
D <sup>3</sup> Technology*	-	X	-	X	-

\*\*typical configuration



# DOMINO™ series main features

## DOMINO Melody™ and DOMINO Harmony™

- *Progressive or interlaced single-tap, dual-tap or RGB analog cameras including dual-speed*
- *High-resolution, support for mega-pixel cameras*
- *10-bit 40 MHz A/D converters*
- *16-Mbyte / 32-Mbyte frame buffer*
- *32-bit 33 MHz / 64-bit 66 MHz PCI bus*
- *Automatic camera control: asynchronous reset support, shutter control, synchronization*
- *Trigger, strobe, enhanced I/O lines*
- *Real-time look-up tables*
- *Internal connectors: video, system and power*

## D<sup>3</sup> Technology™\*: Digital Domain Decoding

- *Fully digital signal processing for analog image acquisition*  
D<sup>3</sup> Technology\* performs all the following functions in the digital domain:
  - Black level restoration
  - Sampling clock generation
  - Gain, offset control
  - Color sub-carrier removal
  - Control over horizontal and vertical pixel counts
  - Synchronization recovery: vertical and horizontal
  - Low-pass filtering
  - Color control
  - Look-up table, gamma handling
- *Inherent extra-low jitter*
- *Absolute digital stability and consequently no need of pixel clock*
- *Absolute parametric stability*
- *Analog, Master and Digital synchronization schemes supported*
- *Excellent performance reproducibility*

## Bus mastering

All EureSys frame grabbers are PCI bus mastering agents that directly store the acquired images into the PC physical memory without CPU involvement. As a unique feature, an EureCard automatically recovers the scatter-gather virtual memory mapping to present the data as a regular bitmap image in a user allocated memory buffer.

## Interfaced cameras

The Domino series interfaces many different analog cameras. An up-to-date list is available on the web site [www.euresys.com](http://www.euresys.com)

## DOMINO series compatibility

The new Domino boards are based on the D<sup>3</sup> Technology\*. They maintain the video compatibility with the whole Domino series thanks to the same connectors.



# DOMINO Melody™



- One single-tap camera**
- One 10-bit 40 MHz A/D converter**
- 16-Mbyte frame buffer**
- PCI bus 32 bits, 33 MHz, 3V or 5V signaling**
- Trigger, strobe I/O and two enhanced I/O lines**

The Domino Melody is a high-quality and cost-effective acquisition board **for industrial monochrome analog camera**. It benefits from the **D<sup>3</sup> Technology\*** offering to cost-sensitive applications the advantages of a perfect digital image. This frame grabber is an ideal solution for mono-camera applications inspecting fast moving objects.

## Camera support

Beside standard CCIR and RS170 cameras, Domino Melody supports any kind of **area-scan single-tap analog camera** including double-speed and mega-pixel cameras.

Progressive or interlaced scanning, synchronous timing or asynchronous reset and asynchronous shutter control are supported. The camera control lines are automatically set to the appropriate configuration and operated according to the camera type and operating mode. This is a standard feature of the MultiCam driver.

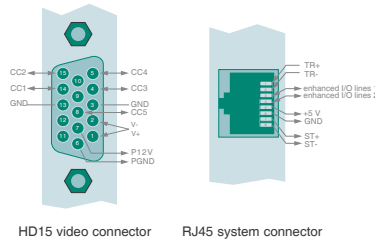
As a unique feature the Domino Melody has strictly no need of jumpers. The **75-ohms termination is a software selectable feature**.

## Camera and I/O connectors

Domino Melody benefits from internal and external video, power and system connectors.

### Bracket connectors:

- one HD15 video connector
- one RJ45 system connector



### Internal connectors:

- one 10-pin header video connector
- one 10-pin header system connector
- one Molex 4-pin connector for camera power supply

## One 10-bit 40 MHz A/D converter

Domino Melody is equipped with a **high-accuracy** 10-bit A/D converter. The sampling rate rises up to 40 MHz. This Domino frame grabber offers one 10-bit input **look-up table** and a programmable input filter. The controls of the gain and offset are also programmable.

## Form factors

The Domino Melody is available in two variants: **standard PCI** and **Low Profile PCI**. The Low Profile computers are smaller than standard PCs saving space which is so important for industrial applications.

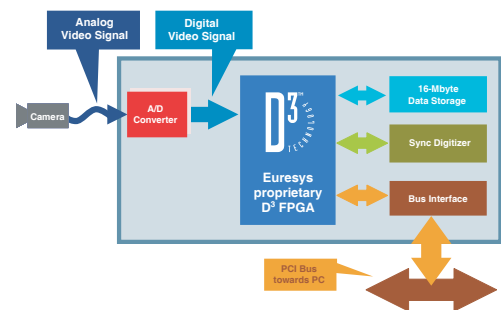


## Trigger, strobe, enhanced I/O lines

In order to facilitate the integration of the board into the application system, the new Domino boards offer **digital I/O lines configurable for general purpose control**.

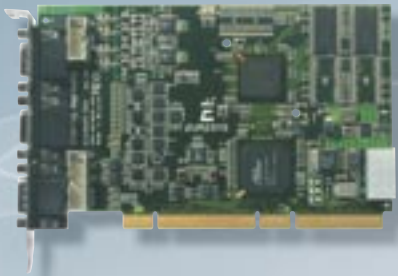
Domino Melody benefits from:

- one **opto-isolated output line** for safe control of external equipment
- one **differential input line** for high-speed, robust and flexible control from external equipment
- two **digital TTL I/O lines** for general purpose control





# DOMINO Harmony™



- One RGB or two monochrome cameras**
- Four 10-bit 40 MHz A/D converters**
- 32-Mbyte frame buffer**
- Two DMA channels**
- PCI bus 64 bits, 66 MHz, 3V or 5V signaling**
- Trigger, strobe I/O and four enhanced I/O lines**

The Domino Harmony is a dual-camera acquisition board for **industrial monochrome and RGB analog cameras**. Domino Harmony benefits from the **D<sup>3</sup> Technology\*** offering to color applications the advantages of a perfect digital image.

## Camera support

Beside standard CCIR and RS170 cameras, Domino Harmony supports any kind of **area-scan monochrome or RGB analog camera** including dual-speed and mega-pixel cameras.

Domino Harmony supports the following configurations:

		One camera configurations			Two cameras configurations		
Monochrome	Single-tap	1	-	-	1	1	2
	Dual-tap	-	1	-	1	-	2
RGB	Triple-tap	-	-	1	-	1	-

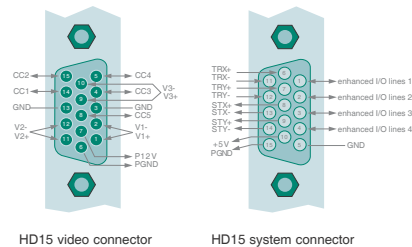
As a unique feature the Domino Harmony has strictly no need of jumpers. The **75-ohms termination is a software selectable feature**.

## Camera and I/O connectors

Domino Harmony benefits from internal and external video and system connectors.

### Bracket connectors:

- two HD15 video connectors
- one HD15 system connector



### Internal connectors:

- one 10-pin header video connector
- one 16-pin header system connector
- one Molex 4-pin connector for camera power supply

## Four 10-bit 40 MHz A/D converters

Domino Harmony is equipped with four **high-accuracy** 10-bit A/D converters. The sampling rate rises up to 40 MHz. This Domino frame grabber offers four 10-bit input **look-up tables** and a programmable input filter. The controls of the gain and offset are also programmable.

## 64-bit 66 MHz PCI bus

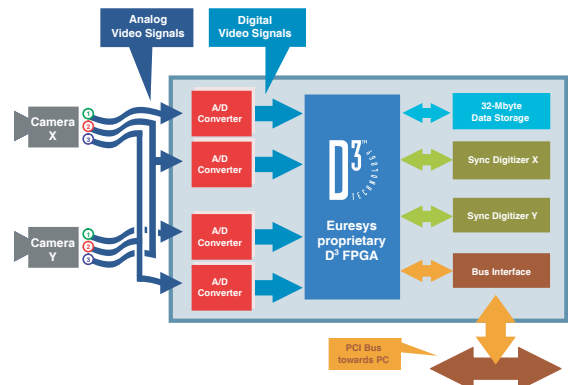
This large bus is **3V or 5V signaling**. **Direct Memory Access** for each camera connected and **PCI bus mastering** are offered.

## Trigger, strobe, enhanced I/O lines

In order to facilitate the integration of the board into the application system, the new Domino boards offer **digital I/O lines configurable for general purpose control**.

Domino Harmony benefits from:

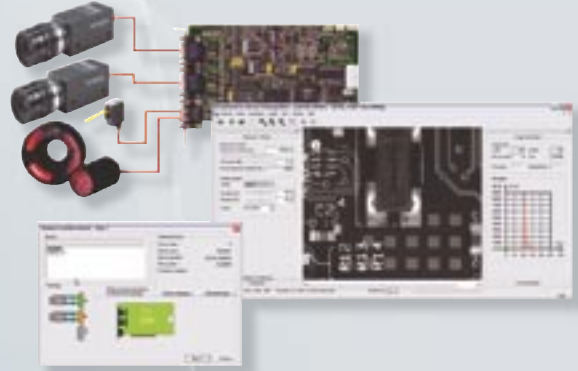
- two **opto-isolated output line** for safe control of external equipment
- two **differential input line** for high-speed, robust and flexible control from external equipment
- four **digital TTL I/O lines** for general purpose control



# DOMINO™ series software support

## MultiCam™

The **MultiCam driver** enables the consistent control of several Euresys frame grabbers, using an arbitrary **number of cameras**, from **one or several software applications**. MultiCam allows defining **channels** linking cameras to buffers in the PC memory. The MultiCam channel **identifies all parameters** ruling the acquisition process from a camera. Every camera feature, such as its type, resolution or image format, is described and controlled through **simple parameters**, considerably easing the camera control task. For each channel-controlled camera, a set of dedicated parameters is created from a CAM file. Euresys delivers pre-defined files for many popular cameras; still the user can customize his **CAM files**. MultiCam complies with most development environments. The native API is **standard C**. **ActiveX controls** enable the use of Visual Basic.



## MultiCam™ for Windows and Linux



The MultiCam driver runs under Windows 2000, XP, Server 2003 and Linux RedHat 7.3 and RedHat 8.0. It allows Euresys customers to combine the ease-of use of the MultiCam driver and the eVision software tools with the cost-effectiveness of Linux.

## EasyMultiCam™

Offered as a part of the **eVision** tools suite, **EasyMultiCam** is a **set of powerful C++ classes** embedding the whole MultiCam functionality. The **object oriented** eVision functions define image containers suitable for **image processing and analysis**. The image objects inherit acquisition methods from EasyMultiCam. Implementing the image capture code into a machine vision application is now straightforward.

# Ordering Information

<b>PRODUCT NAME</b>	<b>PRODUCT DESCRIPTION</b>	<b>PART NUMBER</b>
<b>PCI capture boards</b>		
EureCard DOMINO Iota	Single input analog frame grabber	1162
EureCard DOMINO Melody	Single input analog frame grabber based on D <sup>3</sup>	1167
EureCard DOMINO Melody Low Profile	Single input analog LP frame grabber based on D <sup>3</sup>	1167-LP
EureCard DOMINO Alpha 2	Dual input frame grabber	1161
EureCard DOMINO Harmony	Dual input analog frame grabber based on D <sup>3</sup>	1168
EureCard DOMINO Gamma	Multiple input frame grabber	1159

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