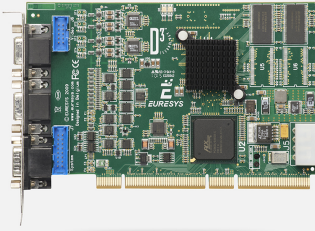


# Domino Harmony

Frame grabber for two single-tap or one RGB non-standard analog cameras



## At a Glance

- Triple 10-bit 40 MHz A/D converter
- 64-bit 66 MHz PCI bus
- D<sup>3</sup> technology for extremely low synchronization jitter
- Support for mega-pixel progressive-scan and interlaced cameras, asynchronous reset and exposure control
- Trigger, strobe and general purpose I/O lines

## Benefits

**Enjoy digital quality from low-cost analog cameras thanks to our patented D<sup>3</sup> technology**

- Extremely low noise, true 10-bit image acquisition
- Lowest jitter: 0.5 ns (or 0.008 pixels) even when using composite video signals, for the most precise measurements
- No need to use pixel clock

**Take advantage of the lowest-cost industrial cameras available on the market**

**Windows and Linux drivers available**

## Applications

**Machine Vision for the General Manufacturing Industries**

- Low cost image acquisition from industrial analog cameras for inspection machines

## Specifications

### Mechanical

Format	Standard profile, half-length, 64-bit Conventional PCI card
Dimensions	L 168 mm x H 107 mm L 6.6 in x H 3.87 in

## Host bus

Standard	PCI 64-bit, 66 MHz, 3.3 V and 5 V signaling
DMA	32-bit
Effective (sustained) delivery bandwidth	240 MB/s (Host PC motherboard dependent)
Power consumption	Max. 6.8 W (1.45 A @ +3.3V, 400 mA @ +5V), excluding I/O power output

## Camera / video inputs

Interface standard(s)	Non-standard Analog
Connectors	<ul style="list-style-type: none"><li>• CAMERA X: high-density sub-D 15-pin male connector for video and camera control</li><li>• Camera Y: high-density sub-D 15-pin male connector for video and camera control</li><li>• Video internal: 10-pin shrouded header video connector on the PCB</li></ul>
Termination resistor	Selectable by software
Number of cameras	<ul style="list-style-type: none"><li>• One or two single-tap cameras</li><li>• One RGB camera</li></ul>
Number of cameras (at full frame rate)	2
A/D converter	Three, 10-bit, 40 MHz
Maximum camera line rate	<ul style="list-style-type: none"><li>• 49.5 kHz in synchronous mode</li><li>• 31.5 kHz in asynchronous reset mode</li></ul>

## On-board processing

On-board memory	64 MB (32 MB for image data)
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## General Purpose Inputs and Outputs

Number of lines	8 I/O lines: <ul style="list-style-type: none"><li>• 2 differential inputs (TRX, TRY)</li><li>• 2 opto-isolated outputs (STX, STY)</li><li>• 4 TTL inputs/outputs (ENHANCED IO1..4)</li></ul>
Connectors	<ul style="list-style-type: none"><li>• SYSTEM: 15-pin male sub-D connector on the bracket</li><li>• SYSTEM INTERNAL: 16-pin shrouded header on the PCB</li><li>• POWER: Molex 4-pin connector on the PCB for camera powering</li></ul>
Usage	<ul style="list-style-type: none"><li>• Camera and image acquisition trigger</li><li>• Light strobe trigger</li><li>• General purpose IO</li></ul>
Electrical specifications	<ul style="list-style-type: none"><li>• TRX, TRY: Inputs compatible with TTL, LVTTTL, differential LVDS, differential RS422, differential RS-485 signals, protected against electrostatic discharge, with choke for the rejection of common-mode noise</li><li>• STX, STY: Opto-isolated outputs, compatible with signals up to 60V, with 3 <math>\mu</math>s fall time, isolated up to 500V</li><li>• IO: TTL inputs or outputs</li></ul>

## Software

Host PC Operating System	<ul style="list-style-type: none"><li>• Microsoft Windows 10, 8.1, 7 for x86 (32-bit) and x86-64 (64-bit) processor architectures</li><li>• Linux for x86 (32-bit) and x86-64 (64-bit) processor architectures</li></ul> <p>Refer to release notes for details</p>
APIs	<ul style="list-style-type: none"><li>• MultiCam 32- and 64-bit binary libraries (Windows and Linux), for ISO-compliant C/C++ compilers</li></ul>

## Environmental conditions

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Operating ambient air temperature 0 to +50 °C / +32 to +122 °F

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Operating ambient air humidity 10 to 90% RH non-condensing

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Storage ambient air temperature -20 to +70 °C/ -4 to +158 °F

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Storage ambient air humidity 10% to 90% RH non-condensing

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## Certifications

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Electromagnetic - EMC standards

- European Council EMC Directive 2004/108/EC
- United States FCC rule 47 CFR 15

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EMC - Emission

- EN 55022:2010 Class B
- FCC 47 Part 15 Class B

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EMC - Immunity

- EN 55024:2010 Class B
- EN 61000-4-2
- EN 61000-4-3
- EN 61000-4-4

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Flammability PCB compliant with UL 94 V-0

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RoHS European Union Directive 2015/863 (ROHS3)

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REACH European Union Regulation 1907/2006

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WEEE Must be disposed of separately from normal household waste and must be recycled according to local regulations

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## Ordering Information

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Product code - Description

- 1168 - Domino Harmony

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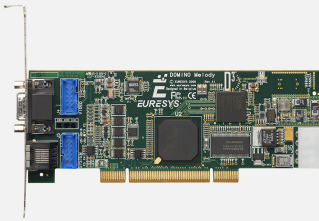
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More at [www.euresys.com](http://www.euresys.com)



# Domino Melody

Low-profile frame grabber for one single-tap non-standard analog camera



## At a Glance

- One 10-bit 40 MHz A/D converter with one 8- or 10-bit LUT
- 32-bit 33 MHz PCI bus, standard and low profile brackets
- D<sup>3</sup> technology for extremely low synchronization jitter
- Support for mega-pixel progressive-scan and interlaced cameras, asynchronous reset and exposure control
- Trigger, strobe and general purpose I/O lines

## Benefits

**Enjoy digital quality from low-cost analog cameras thanks to our patented D<sup>3</sup> technology**

- Extremely low noise, true 10-bit image acquisition
- Lowest jitter: 0.5 ns (or 0.008 pixels) even when using composite video signals, for the most precise measurements
- No need to use pixel clock

**Take advantage of the lowest-cost industrial cameras available on the market**

**Windows and Linux drivers available**

## Applications

**Machine Vision for the General Manufacturing Industries**

- Low cost image acquisition from industrial analog cameras for inspection machines

## Specifications

### Mechanical

Format	Low profile, half-length, 32-bit Conventional PCI card
Dimensions	L 168 mm x H 64 mm L 6.6 in x H 2.21 in

## Host bus

Standard	PCI 32-bit, 33 MHz, 3.3 V and 5 V signaling
DMA	32-bit
Peak delivery bandwidth	132 MB/s
Effective (sustained) delivery bandwidth	90 MB/s (Host PC motherboard dependent)
Power consumption	Max. 6.8 W (1.45 A @ +3.3V, 400 mA @ +5V), excluding I/O power output

## Camera / video inputs

Interface standard(s)	Non-standard Analog
Connectors	<ul style="list-style-type: none"><li>• CAMERA: high-density sub-D 15-pin male connector on the bracket</li><li>• Camera internal: 10-pin shrouded header video connector on the PCB</li></ul>
Termination resistor	Selectable by software
Number of cameras	One single-tap camera
Number of cameras (at full frame rate)	1
A/D converter	One, 10-bit, 40 MHz
Maximum camera line rate	<ul style="list-style-type: none"><li>• 49.5 kHz in synchronous mode</li><li>• 31.5 kHz in asynchronous reset mode</li></ul>

## On-board processing

On-board memory	16 MB (8 MB for image data)
Input LUT (Lookup Table)	1 x 8- or 10-bit LUT

## General Purpose Inputs and Outputs

Number of lines	4 I/O lines: <ul style="list-style-type: none"><li>• 1 differential input (TR)</li><li>• 1 opto-isolated output (ST)</li><li>• 2 TTL inputs/outputs (ENHANCED IO)</li></ul>
Connectors	<ul style="list-style-type: none"><li>• SYSTEM: 8-pin RJ-45 connector on the bracket</li><li>• SYSTEM INTERNAL: 10-pin dual-row 0.1" shrouded header on the PCB</li><li>• CAMERA POWER: 4-pin Molex connector on the PCB for camera powering</li></ul>
Usage	<ul style="list-style-type: none"><li>• Camera and image acquisition trigger</li><li>• Light strobe trigger</li><li>• General purpose IO</li></ul>
Electrical specifications	<ul style="list-style-type: none"><li>• TR: Inputs compatible with TTL, LVTTTL, differential LVDS, differential RS422, differential RS-485 signals, protected against electrostatic discharge, with choke for the rejection of common-mode noise</li><li>• ST: Opto-isolated outputs, compatible with signals up to 60V, with 3 <math>\mu</math>s fall time, isolated up to 500V</li><li>• ENHANCED IO Inputs or outputs compatible with TTL signals, protected against electrostatic discharge, with high-frequency noise filter</li></ul>

## Software

Host PC Operating System	<ul style="list-style-type: none"><li>• Microsoft Windows 10, 8.1, 7 for x86 (32-bit) and x86-64 (64-bit) processor architectures</li><li>• Linux for x86 (32-bit) and x86-64 (64-bit) processor architectures</li></ul> <p>Refer to release notes for details</p>
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APIs • MultiCam 32- and 64-bit binary libraries (Windows and Linux), for ISO-compliant C/C++ compilers

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## Environmental conditions

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Operating ambient air temperature 0 to +50 °C / +32 to +122 °F

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Operating ambient air humidity 10 to 90% RH non-condensing

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Storage ambient air temperature -20 to +70 °C / -4 to +158 °F

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Storage ambient air humidity 10% to 90% RH non-condensing

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## Certifications

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Electromagnetic - EMC standards • European Council EMC Directive 2004/108/EC  
• United States FCC rule 47 CFR 15

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EMC - Emission • EN 55022:2010 Class B  
• FCC 47 Part 15 Class B

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EMC - Immunity • EN 55024:2010 Class B  
• EN 61000-4-2  
• EN 61000-4-3  
• EN 61000-4-4

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KC Certification Korean Radio Waves Act, Article 58-2, Clause 3

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Flammability PCB compliant with UL 94 V-0

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RoHS European Union Directive 2015/863 (ROHS3)

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REACH European Union Regulation 1907/2006

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WEEE Must be disposed of separately from normal household waste and must be recycled according to local regulations

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## Ordering Information

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Product code - Description • 1167 - Domino Melody

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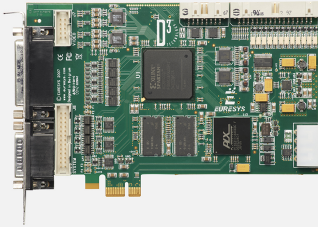
More at [www.euresys.com](http://www.euresys.com)





# Domino Symphony PCIe

用于四个单头非标模拟相机的图像采集卡



## 特性一览

- 4个10位 65 MHz A/D 转换器，带有 8 或 10位 LUT
- PCIe x1 总线
- 极低同步抖动的 D<sup>3</sup> 技术
- 支持百万像素逐行扫描和隔行相机、异步复位和曝光控制
- 触发，闪光及通用 I/O 线

## 优势

通过我们的D<sup>3</sup>专利技术，您的低成本模拟相机也可以获得数字信号同等的图像质量

- 极低的噪音、真正的 10 位图像采集
- 最低的抖动：使用复合视频信号时，对于大多数精确测量，抖动 0.5 纳秒（或 0.008 像素）
- 无需使用像素时钟

利用市场上最低成本的工业相机

提供 Windows 和 Linux 驱动程序

## 应用

一般制造业的机器视觉

- 用于检测机器的来自工业模拟相机的低成本图像采集

## 规格

### Mechanical

Format	Standard profile, half length, 1-lane PCI Express card
Dimensions	L 167.65 mm x H 111.15 mm L 6.6 in x H 4.38 in
Weight	135 g, 4.76 oz

### Host bus

Standard	PCI Express 1.0
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Link width	1 lane
Link speed	2.5 GT/s (PCIe 1.0)
DMA	32-bit
Peak delivery bandwidth	256 MB/s
Effective (sustained) delivery bandwidth	180 MB/s (Host PC motherboard dependent)
Power consumption	Typ. 8.3 W (940 mA @ +3.3V, 430 mA @ +12V), excluding I/O power output

## Camera / video inputs

Interface standard(s)	Non-standard Analog
Connectors	<ul style="list-style-type: none"> <li>• CAMERAS: high-density sub-D 44-pin male connector for video and camera control</li> <li>• Internal video: 10-pin shrouded header video connector on the PCB</li> </ul>
Termination resistor	Selectable by software
Number of cameras	Four single-tap cameras
Number of cameras (at full frame rate)	4
A/D converter	Four, 10-bit, 65 MHz
Maximum camera line rate	52.5 kHz

## On-board processing

On-board memory	64 MB (32 MB for image data)
Input LUT (Lookup Table)	4 x 8- or 10-bit LUT

## General Purpose Inputs and Outputs

Number of lines	<p>32 I/O lines:</p> <ul style="list-style-type: none"> <li>• 4 contact inputs (Factory I/O: IN)</li> <li>• 12 relay outputs (Factory I/O: OUT)</li> <li>• 4 TTL inputs/outputs (System: IO)</li> <li>• 4 differential inputs (System: TR)</li> <li>• 4 opto-isolated outputs (System: ST)</li> <li>• 4 full-duplex serial com ports (Camera COM: RX/TX)</li> </ul>
Connectors	<ul style="list-style-type: none"> <li>• EXTERNAL SYSTEM: 26-pin high-density male sub-D connector on the bracket</li> <li>• INTERNAL SYSTEM: 26-pin dual-row 0.1" shrouded header on the PCB</li> <li>• FACTORY I/O: 34-pin dual-row 0.1" shrouded header on the PCB</li> <li>• CAMERA COM: 16-pin dual-row 0.1" shrouded header on the PCB</li> <li>• Molex 4-pin connector on the PCB for powering cameras</li> </ul>
Usage	<ul style="list-style-type: none"> <li>• Camera and image acquisition trigger</li> <li>• Light strobe trigger</li> <li>• General purpose IO</li> </ul>

Electrical specifications	<ul style="list-style-type: none"> <li>• TR: Inputs compatible with TTL, LVTTTL, differential LVDS, differential RS422, differential RS-485 signals, protected against electrostatic discharge, with choke for the rejection of common-mode noise</li> <li>• ST: Opto-isolated outputs, compatible with signals up to 60V, with 3 <math>\mu</math>s fall time, isolated up to 500V</li> <li>• IO: Inputs or outputs compatible with TTL signals, protected against electrostatic discharge, with high-frequency noise filter</li> <li>• IN: Polarity-free inputs, compatible with TTL, 12V and 24V signals, opto-couplers, relays and switches</li> <li>• OUT: Opto-isolated potential-free and polarity-free solid-state outputs, compatible with signals up to 30V, with 4 <math>\mu</math>s fall time, isolated up to 500V</li> <li>• COM: RS232 asynchronous serial communication lines to control the cameras (exposed to the OS as standard COM ports)</li> </ul>
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## Software

Host PC Operating System	<ul style="list-style-type: none"> <li>• Microsoft Windows 10, 8.1, 7 for x86 (32-bit) and x86-64 (64-bit) processor architectures</li> <li>• Linux for x86 (32-bit) and x86-64 (64-bit) processor architectures</li> </ul> <p>Refer to release notes for details</p>
APIs	<ul style="list-style-type: none"> <li>• MultiCam 32- and 64-bit binary libraries (Windows and Linux), for ISO-compliant C/C++ compilers</li> </ul>

## Environmental conditions

Operating ambient air temperature	0 to +50 °C / +32 to +122 °F
Operating ambient air humidity	10 to 90% RH non-condensing
Storage ambient air temperature	-20 to +70 °C/ -4 to +158 °F
Storage ambient air humidity	10% to 90% RH non-condensing

## Certifications

Electromagnetic - EMC standards	<ul style="list-style-type: none"> <li>• European Council EMC Directive 2004/108/EC</li> </ul>
EMC - Emission	<ul style="list-style-type: none"> <li>• EN 55022:2010 Class B</li> </ul>
EMC - Immunity	<ul style="list-style-type: none"> <li>• EN 55024:2010 Class B</li> </ul>
KC Certification	Korean Radio Waves Act, Article 58-2, Clause 3
Flammability	PCB compliant with UL 94 V-0
RoHS	European Union Directive 2015/863 (ROHS3)
REACH	European Union Regulation 1907/2006
WEEE	Must be disposed of separately from normal household waste and must be recycled according to local regulations

## Ordering Information

Product code - Description	<ul style="list-style-type: none"> <li>• 1601 - Domino Symphony PCIe</li> </ul>
Optional accessories	<ul style="list-style-type: none"> <li>• 6011 - Symphony Spider Cable</li> </ul>



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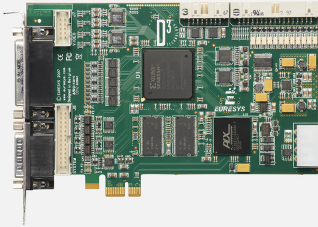
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More at [www.euresys.com](http://www.euresys.com)



# Domino Symphony PCIe

Frame grabber for four single-tap non-standard analog cameras



## At a Glance

- Four 10-bit 65 MHz A/D converters with four 8- or 10-bit LUTs
- PCIe x1 bus
- D<sup>3</sup> technology for extremely low synchronization jitter
- Support for mega-pixel progressive-scan and interlaced cameras, asynchronous reset and exposure control
- Trigger, strobe and general purpose I/O lines

## Benefits

**Enjoy digital quality from low-cost analog cameras thanks to our patented D<sup>3</sup> technology**

- Extremely low noise, true 10-bit image acquisition
- Lowest jitter: 0.5 ns (or 0.008 pixels) even when using composite video signals, for the most precise measurements
- No need to use pixel clock

**Take advantage of the lowest-cost industrial cameras available on the market**

**Windows and Linux drivers available**

## Applications

**Machine Vision for the General Manufacturing Industries**

- Low cost image acquisition from industrial analog cameras for inspection machines

## Specifications

### Mechanical

Format	Standard profile, half length, 1-lane PCI Express card
Dimensions	L 167.65 mm x H 111.15 mm L 6.6 in x H 4.38 in
Weight	135 g, 4.76 oz

## Host bus

Standard	PCI Express 1.0
Link width	1 lane
Link speed	2.5 GT/s (PCIe 1.0)
DMA	32-bit
Peak delivery bandwidth	256 MB/s
Effective (sustained) delivery bandwidth	180 MB/s (Host PC motherboard dependent)
Power consumption	Typ. 8.3 W (940 mA @ +3.3V, 430 mA @ +12V), excluding I/O power output

## Camera / video inputs

Interface standard(s)	Non-standard Analog
Connectors	<ul style="list-style-type: none"><li>• CAMERAS: high-density sub-D 44-pin male connector for video and camera control</li><li>• Internal video: 10-pin shrouded header video connector on the PCB</li></ul>
Termination resistor	Selectable by software
Number of cameras	Four single-tap cameras
Number of cameras (at full frame rate)	4
A/D converter	Four, 10-bit, 65 MHz
Maximum camera line rate	52.5 kHz

## On-board processing

On-board memory	64 MB (32 MB for image data)
Input LUT (Lookup Table)	4 x 8- or 10-bit LUT

## General Purpose Inputs and Outputs

Number of lines	32 I/O lines: <ul style="list-style-type: none"><li>• 4 contact inputs (Factory I/O: IN)</li><li>• 12 relay outputs (Factory I/O: OUT)</li><li>• 4 TTL inputs/outputs (System: IO)</li><li>• 4 differential inputs (System: TR)</li><li>• 4 opto-isolated outputs (System: ST)</li><li>• 4 full-duplex serial com ports (Camera COM: RX/TX)</li></ul>
Connectors	<ul style="list-style-type: none"><li>• EXTERNAL SYSTEM: 26-pin high-density male sub-D connector on the bracket</li><li>• INTERNAL SYSTEM: 26-pin dual-row 0.1" shrouded header on the PCB</li><li>• FACTORY I/O: 34-pin dual-row 0.1" shrouded header on the PCB</li><li>• CAMERA COM: 16-pin dual-row 0.1" shrouded header on the PCB</li><li>• Molex 4-pin connector on the PCB for powering cameras</li></ul>
Usage	<ul style="list-style-type: none"><li>• Camera and image acquisition trigger</li><li>• Light strobe trigger</li><li>• General purpose IO</li></ul>

Electrical specifications	<ul style="list-style-type: none"> <li>• TR: Inputs compatible with TTL, LVTTTL, differential LVDS, differential RS422, differential RS-485 signals, protected against electrostatic discharge, with choke for the rejection of common-mode noise</li> <li>• ST: Opto-isolated outputs, compatible with signals up to 60V, with 3 <math>\mu</math>s fall time, isolated up to 500V</li> <li>• IO: Inputs or outputs compatible with TTL signals, protected against electrostatic discharge, with high-frequency noise filter</li> <li>• IN: Polarity-free inputs, compatible with TTL, 12V and 24V signals, opto-couplers, relays and switches</li> <li>• OUT: Opto-isolated potential-free and polarity-free solid-state outputs, compatible with signals up to 30V, with 4 <math>\mu</math>s fall time, isolated up to 500V</li> <li>• COM: RS232 asynchronous serial communication lines to control the cameras (exposed to the OS as standard COM ports)</li> </ul>
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## Software

Host PC Operating System	<ul style="list-style-type: none"> <li>• Microsoft Windows 10, 8.1, 7 for x86 (32-bit) and x86-64 (64-bit) processor architectures</li> <li>• Linux for x86 (32-bit) and x86-64 (64-bit) processor architectures</li> </ul> <p>Refer to release notes for details</p>
APIs	<ul style="list-style-type: none"> <li>• MultiCam 32- and 64-bit binary libraries (Windows and Linux), for ISO-compliant C/C++ compilers</li> </ul>

## Environmental conditions

Operating ambient air temperature	0 to +50 °C / +32 to +122 °F
Operating ambient air humidity	10 to 90% RH non-condensing
Storage ambient air temperature	-20 to +70 °C/ -4 to +158 °F
Storage ambient air humidity	10% to 90% RH non-condensing

## Certifications

Electromagnetic - EMC standards	<ul style="list-style-type: none"> <li>• European Council EMC Directive 2004/108/EC</li> </ul>
EMC - Emission	<ul style="list-style-type: none"> <li>• EN 55022:2010 Class B</li> </ul>
EMC - Immunity	<ul style="list-style-type: none"> <li>• EN 55024:2010 Class B</li> </ul>
KC Certification	Korean Radio Waves Act, Article 58-2, Clause 3
Flammability	PCB compliant with UL 94 V-0
RoHS	European Union Directive 2015/863 (ROHS3)
REACH	European Union Regulation 1907/2006
WEEE	Must be disposed of separately from normal household waste and must be recycled according to local regulations

## Ordering Information

Product code - Description	<ul style="list-style-type: none"> <li>• 1601 - Domino Symphony PCIe</li> </ul>
Optional accessories	<ul style="list-style-type: none"> <li>• 6011 - Symphony Spider Cable</li> </ul>



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More at [www.euresys.com](http://www.euresys.com)





# Symphony Spider Cable

Domino Symphony 星绞线缆

## 特性一览

- 将 Domino Symphony 的支架接头拆分成四个与 Domino Melody 和 Harmony 板兼容的 15 针相机接头



## 规格

### Certifications

REACH	European Union Regulation 1907/2006
WEEE	Must be disposed of separately from normal household waste and must be recycled according to local regulations

### Ordering Information

Product code - Description	• 6011 - Symphony Spider Cable
----------------------------	--------------------------------



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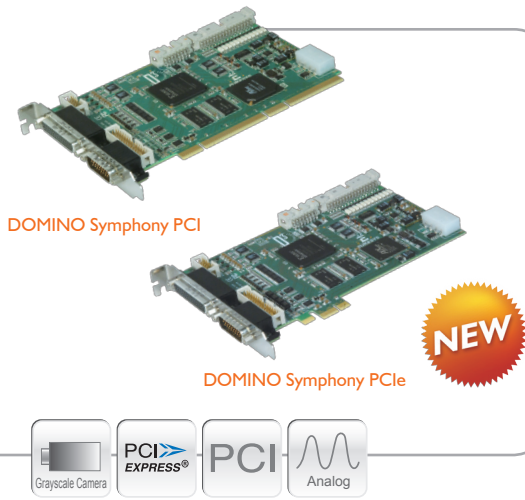
Email: sales.japan@euresys.com

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# Domino Symphony PCI/PCIe

## High-speed 4-CH PCI/PCI Express® Analog Frame Grabbers



### Introduction

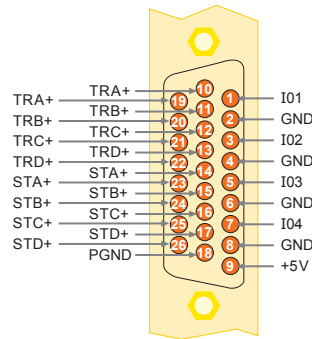
The Domino Symphony and Domino Symphony PCIe are high-speed analog frame grabbers. They provide affordable image acquisition for applications with multiple monochrome cameras.

### D3 technology™ (Please refer to page 2-20 for details.)

D3 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

### Camera and I/O Connectors



### Features

- Form factor:
  - 64-bit, 66 MHz PCI bus (Domino Symphony PCI)
  - PCI Express® x1 full-height, half-length (Domino Symphony PCIe)
- Support four single-tap cameras
- Trigger, strobe, enhanced I/O lines
- 10-bit 65 MHz A/D converters
- 64 MB frame buffer
- Support D3 technology

### Applications

- Quality control
- Semiconductor inspections
- PCB inspections
- FPD inspections
- On-the-fly image acquisition
- High frame rate image acquisition

### Software Support

- EasyMultiCam is the unique driver which serves the Picolo, Domino, and Grablink series frame grabbers.
- The EasyMultiCam driver runs under Microsoft Windows 2000®, XP®, Server 2003®, Vista®, and Linux Enterprise Server 10.

### Ordering Information

- **Domino Symphony PCI**  
High-speed 4-CH PCI analog frame grabber
- **Domino Symphony PCIe**  
High-speed 4-CH PCI Express® analog frame grabber

### Accessories

#### Cabling

- **Domino Symphony Cable**  
0.3 M, one HD44 to four HD15
- **Domino Cable**  
5 M, one HD15 to one Hirose I2

Type of Connector	I/O lines
On the bracket: One HD26 system connector	4 opto-isolated output lines for safe control of external equipment
Internal: One 26-pin header	4 differential LVDS input lines for high-speed, robust and flexible control from external equipment
	4 digital TTL I/O lines for general purpose control



# DOMINO™ series

Analog image acquisition boards with perfect digital quality

D3™  
TECHNOLOGY



**DOMINO  
Melody™**

Standard and Low Profile

**DOMINO  
Harmony™**

**NEW  
DOMINO  
Symphony™**

PCI and PCIe

PCI EXPRESS™

DOMINO™ series

DOMINO Iota™ - DOMINO Melody™ - DOMINO Alpha 2™

DOMINO Harmony™ - DOMINO Symphony™ - DOMINO Symphony PCIe™

[www.euresys.com](http://www.euresys.com)

[info@euresys.com](mailto:info@euresys.com)

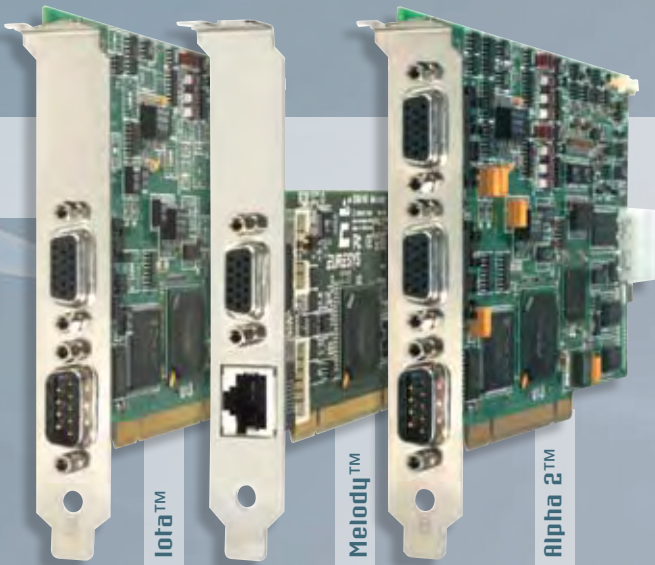
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**EURESYS™**  
Excellence in vision



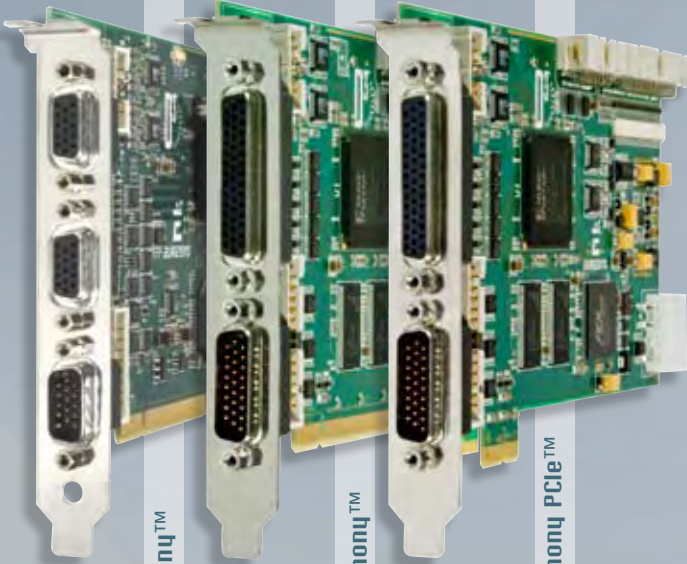
# The DOMINO™ series Comparison Chart



DOMINO Iota™

DOMINO Melody™





DOMINO Alpha 2™



DOMINO Harmony™

DOMINO Symphony™

DOMINO Symphony PCIe™

		<b>DOMINO Iota</b>	<b>DOMINO Melody</b>	<b>DOMINO Alpha 2</b>	<b>DOMINO Harmony</b>	<b>DOMINO Symphony</b>	<b>DOMINO Symphony PCIe</b>
<b>Form factor</b>		32-bit, 33 MHz PCI	32-bit, 33 MHz PCI Low Profile compatible	32-bit, 33 MHz PCI	64-bit, 66 MHz PCI	64-bit, 66 MHz PCI	x1 PCI Express Full height, half length
<b>Analog cameras</b>	Single-tap Dual-tap RGB	1 - -	1 - -	Up to 4 Up to 2 -	2* - 1*	4 - -	4 - -
<b>Video connector</b>	On the bracket Internally	1 x HD15 -	1 x HD15 1 x 10-pin header	1 x HD15 -	2 x HD15 1 x 10-pin header	1 x HD44 1 x 10-pin header	1 x HD44 1 x 10-pin header
<b>Sampling resolution / Max. frequency</b>		8 bits @ 32 MHz	10 bits @ 40 MHz	8 bits @ 32 MHz	10 bits @ 40 MHz	10 bits @ 65 MHz	10 bits @ 65 MHz
<b>D<sup>3</sup> Technology™</b>		-		-			
<b>Delivery bandwidth</b>		90 MB/s	90 MB/s	90 MB/s	Up to 240 MB/s	Up to 240 MB/s	Up to 180 MB/s
<b>On-board memory</b>		8-MB	16-MB	8-MB	32-MB	64-MB	64-MB
<b>Pre-processing</b>		1 x 8-bit LUT	1 x 8/10-bit LUT	2 x 8-bit LUT	-	4 x 8/10-bit LUT	4 x 8/10-bit LUT
<b>Input Output Lines</b>							
- System IO connector -							
<b>Connector type</b>	On the bracket Internal header	DB-9M -	RJ-45 10-pin	DB-9M -	HD-15M 10-pin	HD-26M 26-pin	HD-26M 26-pin
<b>Input lines</b>		3 TTL	1 LVDS	3 TTL	2 LVDS	4 LVDS	4 LVDS
<b>Output lines</b>		3 TTL	1 opto-isolated	3 TTL	2 opto-isolated	4 opto-isolated	4 opto-isolated
<b>TTL bidirectional I/O lines</b>		-	2 TTL	-	4 TTL	4 TTL	4 TTL
<b>5V Power supply</b>		✓	✓	✓	✓	✓	✓
- Factory IO connector -							
<b>Connector type</b>	Internal header	-	-	-	-	34-pin	34-pin
<b>Differential lines</b>		-	-	-	-	4 Input / 12 Output	4 Input / 12 Output
- Camera Com connector -							
<b>Connector type</b>	Internal header	-	-	-	-	16-pin	16-pin
<b>Serial RS-232 lines</b>		-	-	-	-	4	4
- 12V camera power connector -							
<b>Connector type</b>	Internal header	1 Molex 4-pin	1 Molex 4-pin	1 Molex 4-pin	1 Molex 4-pin	1 Molex 4-pin	1 Molex 4-pin

\* Exclusive

# Main features

- **Support of analog cameras**
  - Progressive or interlaced scanning
  - Synchronous timing or asynchronous reset and shutter control
  - Monochrome single-tap, dual-tap or RGB
  - Up to quad-speed
  - High-resolution, support for mega-pixel cameras
- **A/D converters** 8-bit 32MHz - Domino Iota and Alpha 2 -  
10-bit 40/65MHz - Domino Melody, Harmony, Symphony -  
- 8- or 10-bit input LUTs and programmable input filter
- **On-board memory**
- **Trigger, strobe, enhanced I/O lines**
- **Internal connectors: video, system and power**
- **MultiCam drivers for Microsoft Windows® and Linux**



## DOMINO Melody™, DOMINO Harmony™ and DOMINO Symphony™

- **D<sup>3</sup> Technology™\***
  - Fully digital signal processing chain
    - 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
  - Extremely low synchronization jitter
  - Absolute digital stability and consequently no need of pixel clock
  - Absolute parametric stability
  - Various camera synchronization mode supported
  - Excellent performance reproducibility

The Domino series is a range of high-end **PCI** and **PCI Express** frame grabbers for **analog** cameras. They support any system function associated to industrial acquisition, such as camera asynchronous reset, exposure and strobe control. The latest Domino boards - **Melody, Harmony and Symphony** - are based on an innovative proprietary technology called **D<sup>3</sup> Technology™\***. It provides a **perfect digital image** with the benefits of a proven analog environment: low-cost, reliable cabling and connections, smallest cameras, low power, ... The D<sup>3</sup> Technology\* offers unequalled signal stability and image quality to the analog acquisition. These boards are further enhanced by extensive on-board I/O capabilities.

### 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**, a Euresys board 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 and the MultiCam drivers interface an impressive choice of different analog cameras.

► An up-to-date list is available on the web site [www.euresys.com](http://www.euresys.com)

The Domino Melody, Harmony and Symphony support top-notch cameras such as dual, triple and quad-speed. As a unique feature, they have strictly no jumpers. Even the 75-ohm termination resistor is a software selectable feature.

### 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 trigger input, strobe output or general purpose control.



# DOMINO Melody™



- One single-tap camera**
- One 10-bit 40 MHz A/D converter**
- One 8- or 10-bit LUT**
- 16-Mbyte on-board memory**
- Form factor: Conventional PCI**
- 32-bit, 33 MHz, 3V or 5V signaling**
- Standard and low profile**

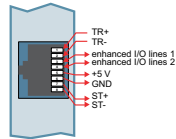
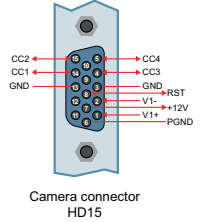
The Domino Melody is an ideal solution for single-camera applications inspecting fast moving objects.

- Camera support Video and power connectors:**
- One HD15 video connector on the bracket
  - One internal 10-pin header video connector
  - One Molex 4-pin connector for camera power supply

### Trigger, strobe, enhanced I/O lines

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

- System connectors:**
- One **RJ45 system connector on the bracket**
  - One **internal 10-pin header**



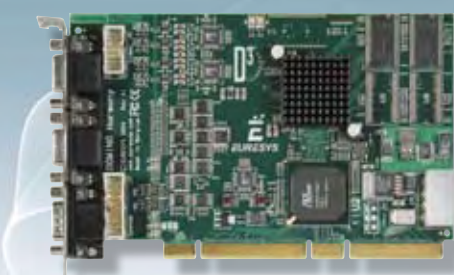
System connector RJ45

### Form factors

The Domino Melody has a small PCB size corresponding to the Low Profile form factor. It is delivered with two brackets, allowing to install the board in either a low profile small standard PC or in a conventional larger PC. The Low Profile computers are smaller than standard PCs saving space which is so important for industrial applications.



# DOMINO Harmony™



- One RGB or two monochrome cameras**
- 10-bit 40 MHz A/D converters**
- 32-Mbyte on-board memory**
- Two DMA channels**
- Form factor: Conventional PCI**
- 64-bit, 66 MHz, 3V or 5V signaling**

The Domino Harmony is an analog frame grabber for on-the-fly acquisition with two industrial monochromes and one RGB analog camera.

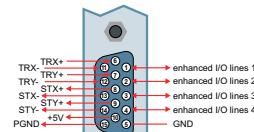
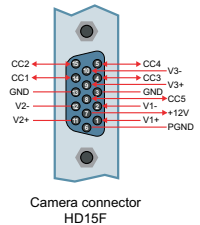
- Camera support**
- One or two area-scan single-tap cameras
  - One RGB analog camera

- Video and power connectors:**
- Two HD15 video connectors on the bracket
  - One internal 10-pin header video connector
  - One Molex 4-pin connector for camera power supply

### Trigger, strobe, enhanced I/O lines

- Two **opto-isolated output lines** for safe control of external strobe light equipment
- Two **differential LVDS input lines** for high-speed, robust and flexible control from external equipment
- Four **digital TTL I/O lines** for general purpose control

- System connectors:**
- One **HD15 system connector on the bracket**
  - One **internal 10-pin header system connector**



System connector HD15M



# DOMINO Symphony™ NEW



- Four single-tap cameras**
- 10-bit 65 MHz A/D converters**
- 64-Mbyte on-board memory**
- Four DMA channels**
- Form factor:** **Conventional PCI** **64-bit, 66 MHz, 3V or 5V signaling**
- PCI Express** **Full-height, half-length, x1**

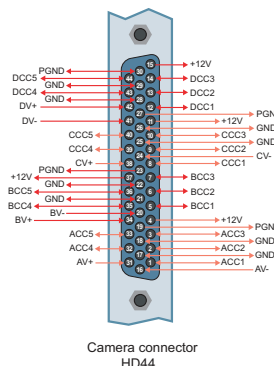
The Domino Symphony and Domino Symphony PCIe are high-speed analog frame grabbers. They provide affordable image acquisition for applications with multiple monochrome cameras.

## Camera support

- Four single-tap cameras including high-speed high-resolution cameras
- Performance: sustained 30 fps acquisition of 8-bit 1.2 Megapixels images on 4 channels concurrently!

## Video and power connectors:

- One HD44 video connectors on the bracket
- One internal 10-pin header video connector
- One Molex 4-pin connector for camera power supply



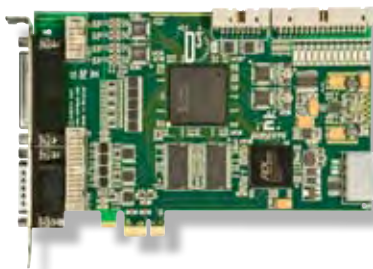
## Rich set of I/O lines

Connector name	Type of connector	I/O lines
System IO connectors	<i>On the bracket:</i> One HD26 system connector	- 4 opto-isolated output lines for safe control of external equipment
	<i>Internally:</i> One 26-pin header	- 4 differential LVDS input lines for high-speed, robust and flexible control from external equipment - 4 digital TTL I/O lines for general purpose control
Factory IO connector	<i>Internally:</i> One 34-pin header	- 4 contact-closure inputs - 12 solid-state outputs
Camera COM connector <i>Exposed to the OS as standard COM ports</i>	<i>Internally:</i> One 16-pin header	- 4 RS232 asynchronous serial communication lines to control the cameras

## Form Factors

The Domino Symphony is available in two versions:

- **Domino Symphony™**: conventional PCI 64-bit 66-MHz PCI-X compatible
- **Domino Symphony PCIe™**: 1-lane PCI Express

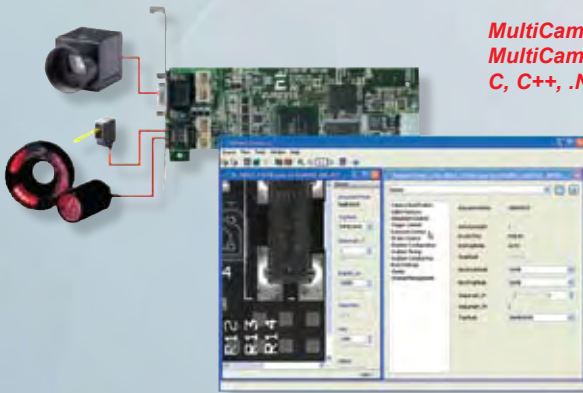




# Software support

## MultiCam™

*MultiCam for Microsoft Windows 2000®, XP®, Server 2003® and Vista®  
MultiCam for Suse Linux Enterprise Server 10  
C, C++, .NET classes and ActiveX controls*



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**.

► An up-to-date list is available on the *Interfacing Cameras* page on [www.euresys.com](http://www.euresys.com).

### MultiCam™ IDEs

Using MultiCam with C++	Microsoft Visual C++ 2005	Borland C++ Builder 2006
	Microsoft Visual C++ .NET 2003	Borland C++ Builder 6.0
	Microsoft Visual C++ 6.0	gcc c++ 4.1.0-28.4
Using MultiCam with .NET	Microsoft Visual C# 2005	
	Microsoft Visual C# .NET 2003	
Using MultiCam with C	Microsoft Visual C++ 2005	Borland C++ Builder 2006
	Microsoft Visual C++ .NET 2003	Borland C++ Builder 6.0
	Microsoft Visual C++ 6.0	gcc 4.1.0-28.4
Using MultiCam with ActiveX	Microsoft Visual Basic 6.0	Borland Delphi 2006
		Borland Delphi 6.0

# Ordering Information

ORDER CODE	DESIGNATION	ORDER CODE	DESIGNATION
1162	DOMINO Iota	1168	DOMINO Harmony
1167	DOMINO Melody	1169	DOMINO Symphony
1161	DOMINO Alpha 2	1601	DOMINO Symphony PCIe

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Your distributor

