M2i.ClkDist / M2i.ClkDist-exp - Clock and Trigger Distribution Card

- Easy synchronization of distributed systems
- 2 independent 1 onto 17 distribution channels for 2 x clock or clock and trigger
- Very low channel-to-channel skew
- Passive PCI or PCI Express card, no programming necessary
- LVTTL outputs, capable of driving 50 ohm loads
- Outputs can be deactivated by jumper
- As an option: useable as clock source equipped with separately ordered quartz oscillator

Hardware block diagram

[Diagram showing the block diagram of the M2i.ClkDist card, including Cin, Cin Oscillator Option 1, Trigger/Clock Synchronization, Tin, Tin Oscillator Option 2, and various output channels with notes on jumper marking and internal termination.]

[Note: "\(\alpha\)" on output connector on front panel connected to 50 ohm internal termination for same load on every driver output, no load (not suggested).]
**Technical Data**

**Inputs**
- Input voltage low level: \( \geq 0 \text{ V and } \leq 0.8 \text{ V (min level -0.3 V)} \)
- Input voltage high level: \( \geq 2.0 \text{ V and } \leq 3.3 \text{ V (max level 3.8 V)} \)
- Trigger pulse width on sync feature use: \( \geq 2 \text{ samplings clocks} \)
- Termination: 20 kOhm, selectable per jumper to 50 ohm
- Coupling: DC, selectable by jumper to AC
- Max input clock rate: 167 MHz
- Max trigger synchronization rate: 125 MHz
- Connector type: 3mm SMB male

**Outputs**
- Output voltage low level (50 ohm load): \( \geq 0 \text{ V and } \leq 0.5 \text{ V} \)
- Output voltage high level (50 ohm load): \( \geq 2.4 \text{ V and } \leq 3.3 \text{ V} \)
- Max channel to channel skew (one bank): 150 ps
- Max channel to channel skew (all outputs): 275 ps
- Output impedance (typical): 7 ohm
- Trigger pulse width on sync feature use: \( \geq 2 \text{ samplings clocks max channel to channel skew (all outputs): 275 ps} \)
- Termination: 20 kOhm, selectable per jumper to 50 ohm
- Max channel to channel skew (all outputs): 275 ps
- Coupling: DC, selectable by jumper to AC
- Output impedance (typical): 7 ohm

**Power consumption**

<table>
<thead>
<tr>
<th>PCI/PCI-X</th>
<th>PCIe</th>
<th>max Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3 V</td>
<td>3.3V</td>
<td>2.3 W</td>
</tr>
<tr>
<td>Idle, Running</td>
<td>0.7 A</td>
<td>0.7 A</td>
</tr>
<tr>
<td>4 output channels 50 ohm load*</td>
<td>0.9 A</td>
<td>0.9 A</td>
</tr>
<tr>
<td>17 output channels 50 ohm load*</td>
<td>1.2 A</td>
<td>1.2 A</td>
</tr>
<tr>
<td>34 output channels 50 ohm load*</td>
<td>1.6 A</td>
<td>1.6 A</td>
</tr>
</tbody>
</table>

*measured with 125 MHz clock signal, 50% duty cycle

**Environmental and Physical details**
- Dimension (PCB only): 174 mm x 107 mm (half PCI length)
- Width: 1 slot
- Weight: < 200g
- Warm up time: 10 minutes
- Operating temperature: 0°C - 50°C

**Jumper Placement**

**Order Information**

**PCI/PCI-X**

- **Order no.**
- **Description**
- M2i.CkDist: Clock and trigger distribution card with 2 times 1 into 17 channels distribution, short PCI 32 bit card, no cables included
- M2i.CkDist-exp: Clock and trigger distribution card with 2 times 1 into 17 channels distribution, short PCI Express x1 card, no cables included
- M2i.CkDist.xxMyy: Quartz option with xx MHz and a accuracy of yy ppm (e.g. 40M20 = 40 MHz 20 ppm), please request an individual quote.

**Cables**

<table>
<thead>
<tr>
<th>Order no.</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cab-1m-9m-80</td>
<td>Adapter cable MMCX male to BNC male, 80 cm</td>
</tr>
<tr>
<td>Cab-1m-9f-80</td>
<td>Adapter cable MMCX male to BNC female, 80 cm</td>
</tr>
<tr>
<td>Cab-1m-9m-200</td>
<td>Adapter cable MMCX male to BNC male, 200 cm</td>
</tr>
<tr>
<td>Cab-1m-3f-80</td>
<td>Adapter cable MMCX male to SMB female, 80 cm</td>
</tr>
<tr>
<td>Cab-1m-3f-200</td>
<td>Adapter cable MMCX male to SMB female, 200 cm</td>
</tr>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Cab-3191200</td>
<td>Adapter cable SMB female to BNC female, 200 cm</td>
</tr>
</tbody>
</table>

Information: The standard adapter cables are based on RG174 cables and have a nominal attenuation of 0.3 dB/m at 100 MHz.

Technical changes and printing errors possible

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