Description
The National Instruments PXI-6562 and PXI-6561 are 400 and 200 Mb/s digital waveform generator/analyzers, respectively, for interfacing to LVDS digital electronics. These modules feature 200 and 100 MHz clock rates, respectively, single and double data rate modes, 16 channels with per-channel direction control (single data rate mode), 2, 16, or 128 Mb/channel onboard memory, interactive waveform and script editor software, synchronization and Memory Core (SMC) for tight synchronization with other SMC-based devices.

Design High-Density Interfaces
- 400 Mb/s (PXI-6562) or 200 Mb/s (PXI-6561) maximum data rate in double data rate (DDR) mode
- 200 MHz (PXI-6562) or 100 MHz (PXI-6561) maximum clock rate
- Data delay for clock frequencies ≥ 25 MHz
- Data delay resolution as small as 60 ps (see specifications on following page for valid delay ranges)
- Internal or external clock sources
- Tight channel-channel skew of ±215 ps (generation) or ±330 ps (acquisition) (typical for clock frequencies at or above 25 MHz)
- 16 channels with per-channel direction control in single data rate (SDR) mode

Create and Edit Patterns Interactively with the Digital Waveform Editor
- Import existing waveforms into LabVIEW from VHDL simulation and spreadsheet tools in Value Change Dump (.VCD) or ASCII formats
- Create new waveforms using built-in fill patterns
- Edit waveforms interactively in the user interface

Operating Systems
- Windows 2000/NT/XP

Recommended Software
- LabVIEW
- LabWindows/CVI

Driver and Editing Software (included)
- NI-HS DIO driver
- Express VIs for LabVIEW 7.1 and later
- Script Editor
- Digital Waveform Editor (included with 16 and 128 Mb/channel models)

Ordering Information
NI PXI-6561 ..............................................................778993-0M1
NI PXI-6562 ..............................................................778994-0M1
1Where M is: 1 (2 Mb/channel), 2 (16 Mb/channel), or 3 (128 Mb/channel)
Includes NI-HS DIO driver and Script Editor. The 16 and 128 Mb/channel models also include the Digital Waveform Editor.

Software
NI Digital Waveform Editor ........................................778724-03

Cable
SHB12X-B12X LVDS cable ..........................................192344-01

Accessories
SMA-2164 prototyping board ......................................779323-01
Mating connector for custom load boards ..................779157-01

BUY NOW!
For complete product specifications, pricing, and accessory information, call (800) 813-3693 (U.S. only) or go to ni.com/modularinstruments.
400 and 200 Mb/s LVDS Digital Waveform Generator/Analyzers

Specifications

For detailed specifications, please visit ni.com/info and enter pxi6561 or pxi6562.
These specifications are valid for PXI for the temperature range 0 to 55 °C.

Channel Characteristics

<table>
<thead>
<tr>
<th>Specification</th>
<th>Single Data Rate (SDR)</th>
<th>Double Data Rate (DDR)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data channels</td>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Direction control of data channels:
- Data [:0:16] (per channel)
- Data [:0:16]

Data generation:
- Dedicated for data generation
- Dedicated for data acquisition

Using SDR, data is clocked using the rising or falling edge of the Sample clock.
Using DDR, data is clocked using both edges of the Sample clock.

Maximum clock rate:
- 50 MHz (except 464 MHz)
- 1 sample clock period except
- Maximum clock rate
- 50 MHz
- 1 sample clock period

Data channel-to-channel skew:
- ±215 (typical across all data channels and PFI[:1:2])

Generation data delay resolution:
- 1/256 of sample clock period for clock frequencies ≥ 25 MHz
- 60 ps, whichever is greater

Acquisition data delay range:
- See Exported Sample Clock Delay Range table
- Acquisition data delay resolution:
- See Exported Sample Clock Delay Range table
- ≥ 25 MHz
- 60 ps, whichever is greater

Waveform Characteristics

Triggers (Inputs to the NI 656x)
- Source types:
  - 1. PFI [:0] (SMB connectors)
  - 2. PFI [:1:3] (DDC connector)
  - 3. PFI [:1:3] (DDC connector)
  - 4. PFI [:1:3] (DDC connector)
  - 5. Pattern match (acquisition sessions only)
  - 6. Software (user function call)
  - 7. Disabled (do not wait for a trigger)

Trigger detection:
- 1. Start trigger (edge detection: rising or falling)
- 2. Pause trigger (level detection: high or low)
- 3. Script trigger (edge detection: rising or falling)
- 4. Reference triggers (edge detection: rising or falling)
- 5. Advance trigger (edge detection: rising or falling)

Minimum required trigger pulse width:
- 30 ns
- Destinations:
  - 1. PFI [:0] (SMB connectors)
  - 2. PFI [:1:3] (DDC connector)
  - 3. PFI [:1:3] (DDC connector)
  - 4. PFI [:1:3] (DDC connector)
  - 5. PFI [:1:3] (DDC connector)
  - 6. Software (user function call)
  - 7. Disabled (do not wait for a trigger)

Power Requirements
- Maximum:
  - 16 W

Physical

I/O Panel Connectors

<table>
<thead>
<tr>
<th>Label</th>
<th>External Function(s)</th>
<th>Connector Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLK IN</td>
<td>External sample clock, External PLL reference input</td>
<td>SMB jack</td>
</tr>
<tr>
<td>PFI 0</td>
<td>Events, triggers</td>
<td>SMB jack</td>
</tr>
<tr>
<td>CLK OUT</td>
<td>Exported sample clock</td>
<td>SMB jack</td>
</tr>
<tr>
<td>Digital data and control (EDD)</td>
<td>Digital data channel, exported reference clock</td>
<td>12X InfiniBand</td>
</tr>
<tr>
<td>PXI</td>
<td>Single 3U CompactPCI slot</td>
<td>PXI Compatible</td>
</tr>
</tbody>
</table>

Environmental

Operating temperature:PXI: 0 to 55 °C in all NI PXI chassis except the following:
- PXI-1000/9 chassis: 0 to 45 °C when installed in an NI PXI-1000/9 and
- PXI-101x chassis: 0 to 40 °C

Storage temperature:
- -20 to 70 °C

Relative humidity:
- 10 to 90%, noncondensing (meets IEC-60068-2-3)
- 5 to 95%, noncondensing (meets IEC-60068-2-3)

Compliance:
- UL 3111-1, MIL-STD-810G
- IEC 61010-1, EN 61010-1
- MIL-STD-810G
- CAN/CSA C22.2 No. 1010.1
- For non-US EMC compliance, you must operate this device with shielded cabling. Add covers and filters panels must be installed. See the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit ni.com/hardref.nsf
NI Services and Support

NI has the services and support to meet your needs around the globe and through the application life cycle—from planning and development through deployment and ongoing maintenance. We offer services and service levels to meet customer requirements in research, design, validation, and manufacturing. Visit ni.com/services.

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We also offer service programs that provide automatic upgrades to your application development environment and higher levels of technical support. Visit ni.com/ssp.

Hardware Services
NI Factory Installation Services
NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with ni.com/pxiadvisor.

Calibration Services
NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. We provide manual calibration procedures, services to recalibrate your products, and automated calibration software specifically designed for use by metrology laboratories. Visit ni.com/calibration.

Repair and Extended Warranty
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