COMPREHENSIVE SERVICES

We offer competitive repair and calibration services, as well as easily accessible documentation and free downloadable resources.

SELL YOUR SURPLUS

We buy new, used, decommissioned, and surplus parts from every NI series. We work out the best solution to suit your individual needs.

Sell For Cash Get Credit Receive a Trade-In Deal

OBSOLETE NI HARDWARE IN STOCK & READY TO SHIP

We stock **New, New Surplus, Refurbished,** and **Reconditioned** NI Hardware.

APEX WAVES

Bridging the gap *between the manufacturer and your legacy test system.*

1-800-915-6216

www.apexwaves.com

sales@apexwaves.com

Request a Quote CLICK HERE *PCIe-6612*

DEVICE SPECIFICATIONS

NI 6624

This document lists the specifications for the NI PCI/PXI-6624 device. These specifications are typical at 25 °C unless otherwise noted. Refer to the *NI 6624 User Manual* for more information about NI 6624 devices.

Power

Power requirement ..... 0.75 A from +5 V rail; 0.15 A from +3.3 V rail

Isolated Inputs

Number of input channels ..... 26 (3 per counter and 2 extra PFIs)

Input type ..... Driven reference to either supply or ground (two terminals per input)

Maximum input frequency ..... 400 kHz

Minimum input pulse width ..... 1 µs

Input waveform types ..... Any

Voltage

Voltage range ..... Up to 48 VDC

Typical ON voltage ..... 2.5 V

Guaranteed ON voltage ..... 4.1 V

Guaranteed OFF voltage ..... 0.8 V

Current

ON state current ..... 2.2 mA minimum, 6 mA typical, 10 mA maximum

OFF state current ..... 0.1 mA maximum

Propagation Delays (for a 5 V Input Signal)

LOW to HIGH ..... 350 ns typical

HIGH to LOW ..... 220 ns typical

NATIONAL INSTRUMENTS

Isolated Outputs

Number of output channels 8

Output type ..... Sinking (low-side switch)

Output power requirement ..... 5 VDC to 48 VDC
(10 mA per channel, typical at 400 KHz)

Load voltage range ..... 5 VDC to 48 VDC

Switching current ..... 100 mA per channel, maximum

Inrush current ..... 600 mA per channel, maximum

Maximum output frequency ..... 400 kHz

Minimum output pulse width ..... 1 µs

Typical switching times (with a 5 V, 100 Ω load)

- Turn on ..... 500 ns
- Turn off ..... 150 ns

Output low maximum voltage
(with SH100-100-S2 cable) ..... 0.47 V at 10 mA;
0.75 V at 100 mA

Output leakage current when OFF ..... 60 µA maximum

Timing I/O

Number of counters ..... 8 up/down

Resolution ..... 32 bits

Maximum count 4,294,967,295

Rollover times

- 100 kHz timebase ..... 11.93 h
- 20 MHz timebase ..... 214.74 s

Baseclocks available ..... 100 kHz and 20 MHz

Baseclock accuracy ..... 50 ppm (±0.005%) over temperature

Maximum source frequency ..... 20 MHz

Data transfer ..... DMA (up to 3 channels), interrupts

RTSI Trigger Lines (PCI Only)

Trigger lines <0..6> 7

RTSI clock 1

Minimum pulse width for trigger and clock ..... 50 ns

PXI Trigger Bus (PXI Only)

Trigger lines <0..5> 6

Star trigger 1

Clock..... 1

Safety Voltages

Protection

Inputs

Current limit ..... 10 mA maximum (over operating temperature range)

Reverse and overvoltage..... ±60 VDC

Outputs

Short circuit (on output pins)..... 0.6 A minimum, 1.1 A maximum (stays off after detecting a short circuit and retries to operate every 250 ms, and then automatically recovers after removing the short)

Reverse and overvoltage (on output and Vdd pins)..... ±60 VDC

Functionality with transient spikes (on Vdd pins)..... Up to 80 V peak

Isolation

Channel-to-channel..... 60 VDC, Measurement Category I

Channel-to earth ground ..... 60 VDC, Measurement Category I

Caution Do *not* exceed 60 VDC between any two I/O channels.

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as MAINS voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low voltage sources, and electronics.

Caution Do not use for measurements within Categories II, III, or IV.

Note Measurement Categories CAT I and CAT O (Other) are equivalent. These test and measurement circuits are not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

Physical

Dimensions

PCI ..... 17.5 cm × 10.7 cm (6.9 in. × 4.2 in.)

PXI ..... 16.0 cm × 10.0 cm (6.3 in. × 3.9 in.)

I/O connector ..... 100-pin female, SCSI-II type

Environment

NI 6624 devices are intended for indoor use only.

Maximum altitude ..... 2,000 meters (at 25 °C ambient temperature)

Pollution Degree 2

Operating Environment

Ambient temperature range ..... 0 °C to 55 °C
(Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2.)

Relative humidity range ..... 10% to 90%, noncondensing
(Tested in accordance with IEC 60068-2-56.)

Storage Environment

Ambient temperature range ..... -20 °C to 70 °C
(Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2.)

Relative humidity range ..... 5% to 95%, noncondensing
(Tested in accordance with IEC 60068-2-56.)

Shock and Vibration (PXI Only)

Operational shock ..... 30 g peak, half-sine, 11 ms pulse
(Tested in accordance with IEC 60068-2-27. Test profile developed in accordance with MIL-PRF-28800F.)

Random vibration

Operating ..... 5 Hz to 500 Hz, 0.3 grms

Nonoperating ..... 5 Hz to 500 Hz, 2.4 grms
(Tested in accordance with IEC 60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

Note Clean the device with a soft, non-metallic brush. Make sure that the device is completely dry and free from contaminants before returning it to service.

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1

Note For UL and other safety certifications, refer to the product label, or visit `ni.com/certification`, search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

This product is designed to meet the requirements of the following standards of EMC for electrical equipment for measurement, control, and laboratory use:

- EN 61326 EMC requirements; Minimum Immunity
- EN 55011 Emissions; Group 1, Class A
- CE, C-Tick, ICES, and FCC Part 15 Emissions; Class A

Note For EMC compliance, operate this device with shielded cabling.

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

- 73/23/EEC; Low-Voltage Directive (safety)
- 89/336/EEC; Electromagnetic Compatibility Directive (EMC)

Note Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit `ni.com/certification`, search by model number or product line, and click the appropriate link in the Certification column.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Minimize Our Environmental Impact* web page at `ni.com/environment`. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

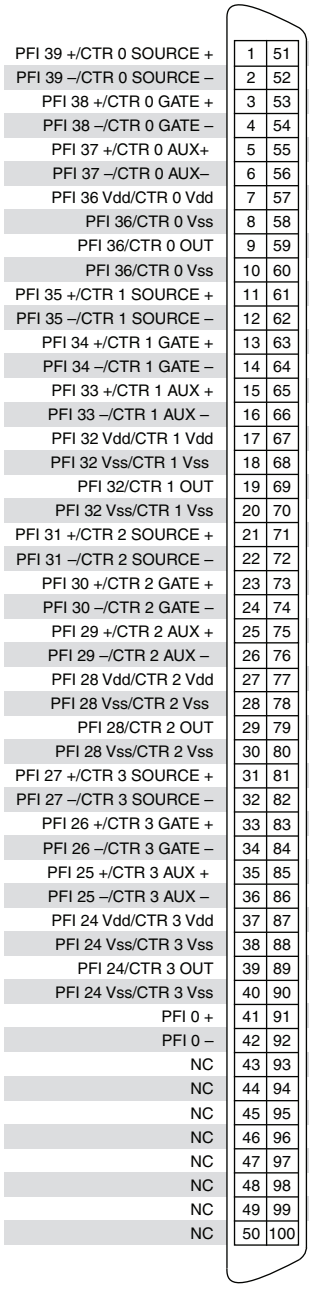
Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of the product life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste and Electronic Equipment, visit `ni.com/environment/weee`.

电子信息产品污染控制管理办法 （中国 RoHS）

中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 `ni.com/environment/rohs_china`。(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)

Figure 1. NI 6624 Pin Assignments



PFI 39 +/CTR 0 SOURCE +	1	51	PFI 23 +/CTR 4 SOURCE +
PFI 39 –/CTR 0 SOURCE –	2	52	PFI 23 –/CTR 4 SOURCE –
PFI 38 +/CTR 0 GATE +	3	53	PFI 22 +/CTR 4 GATE +
PFI 38 –/CTR 0 GATE –	4	54	PFI 22 –/CTR 4 GATE –
PFI 37 +/CTR 0 AUX+	5	55	PFI 21 +/CTR 4 AUX +
PFI 37 –/CTR 0 AUX–	6	56	PFI 21 –/CTR 4 AUX –
PFI 36 Vdd/CTR 0 Vdd	7	57	PFI 20 Vdd/CTR 4 Vdd
PFI 36/CTR 0 Vss	8	58	PFI 20 Vss/CTR 4 Vss
PFI 36/CTR 0 OUT	9	59	PFI 20/CTR 4 OUT
PFI 36/CTR 0 Vss	10	60	PFI 20 Vss/CTR 4 Vss
PFI 35 +/CTR 1 SOURCE +	11	61	PFI 19 +/CTR 5 SOURCE +
PFI 35 –/CTR 1 SOURCE –	12	62	PFI 19 –/CTR 5 SOURCE –
PFI 34 +/CTR 1 GATE +	13	63	PFI 18 +/CTR 5 GATE +
PFI 34 –/CTR 1 GATE –	14	64	PFI 18 –/CTR 5 GATE –
PFI 33 +/CTR 1 AUX +	15	65	PFI 17 +/CTR 5 AUX +
PFI 33 –/CTR 1 AUX –	16	66	PFI 17 –/CTR 5 AUX –
PFI 32 Vdd/CTR 1 Vdd	17	67	PFI 16 Vdd/CTR 5 Vdd
PFI 32 Vss/CTR 1 Vss	18	68	PFI 16 Vss/CTR 5 Vss
PFI 32/CTR 1 OUT	19	69	PFI 16/CTR 5 OUT
PFI 32 Vss/CTR 1 Vss	20	70	PFI 16 Vss/CTR 5 Vss
PFI 31 +/CTR 2 SOURCE +	21	71	PFI 15 +/CTR 6 SOURCE +
PFI 31 –/CTR 2 SOURCE –	22	72	PFI 15 –/CTR 6 SOURCE –
PFI 30 +/CTR 2 GATE +	23	73	PFI 14 +/CTR 6 GATE +
PFI 30 –/CTR 2 GATE –	24	74	PFI 14 –/CTR 6 GATE –
PFI 29 +/CTR 2 AUX +	25	75	PFI 13 +/CTR 6 AUX +
PFI 29 –/CTR 2 AUX –	26	76	PFI 13 –/CTR 6 AUX –
PFI 28 Vdd/CTR 2 Vdd	27	77	PFI 12 Vdd/CTR 6 Vdd
PFI 28 Vss/CTR 2 Vss	28	78	PFI 12 Vss/CTR 6 Vss
PFI 28/CTR 2 OUT	29	79	PFI 12/CTR 6 OUT
PFI 28 Vss/CTR 2 Vss	30	80	PFI 12 Vss/CTR 6 Vss
PFI 27 +/CTR 3 SOURCE +	31	81	PFI 11 +/CTR 7 SOURCE +
PFI 27 –/CTR 3 SOURCE –	32	82	PFI 11 –/CTR 7 SOURCE –
PFI 26 +/CTR 3 GATE +	33	83	PFI 10 +/CTR 7 GATE +
PFI 26 –/CTR 3 GATE –	34	84	PFI 10 –/CTR 7 GATE –
PFI 25 +/CTR 3 AUX +	35	85	PFI 9 +/CTR 7 AUX +
PFI 25 –/CTR 3 AUX –	36	86	PFI 9 –/CTR 7 AUX –
PFI 24 Vdd/CTR 3 Vdd	37	87	PFI 8 Vdd/CTR 7 Vdd
PFI 24 Vss/CTR 3 Vss	38	88	PFI 8 Vss/CTR 7 Vss
PFI 24/CTR 3 OUT	39	89	PFI 8/CTR 7 OUT
PFI 24 Vss/CTR 3 Vss	40	90	PFI 8 Vss/CTR 7 Vss
PFI 0 +	41	91	PFI 4 +
PFI 0 –	42	92	PFI 4 –
NC	43	93	NC
NC	44	94	NC
NC	45	95	NC
NC	46	96	NC
NC	47	97	NC
NC	48	98	NC
NC	49	99	NC
NC	50	100	NC

NC = No Connect

372151B-01 Sep16