# PXI-7841

## Specifications

Authorized Distributor

Integration Partner

# Multifunction Reconfigurable I/O Specifications
## (Formerly known as the NI R Series Multifunction RIO Specifications)

This document lists the specifications of the PCI/PXI-7811, PCI/PXI-7813, PCI/PXI-7830, PCI/PXI-7831, PCI/PXI-7833, PCIe/PXI-7841, PCIe/PXI-7842, PCIe/PXI-7851, PCIe/PXI-7852, PXI-7853, and PXI-7854 devices. These specifications are typical at 25 °C unless otherwise noted.

| Français | Deutsch | 日本語 | 한국어 | 简体中文 |
|---|---|---|---|---|
| | | ni.com/docs | | |

## Conventions

The following conventions appear in these specifications:

NI 78*xx*........................................... Refers to PCI/PXI-7811, PCI/PXI-7813, PCI/PXI-7831, PCI/PXI-7833, PCIe/PXI-7841, PCIe/PXI-7842, PCIe/PXI-7851, and PCIe/PXI-7852 devices.

NI 781*x* .......................................... Refers to PCI/PXI-7811 and PCI/PXI-7813 devices.

NI 783*x*........................................... Refers to PCI/PXI-7831 and PCI/PXI-7833 devices.

NI 784*x*........................................... Refers to PCIe/PXI-7841 and PCIe/PXI-7842 devices.

NI 785*x*........................................... Refers to PCIe/PXI-7851 and PCIe/PXI-7852 devices.

## Analog Input (NI 783*x*/784*x*/785*x* Only)

### Input Characteristics

Number of channels

   NI 7830...................................... 4

   NI 7831/7833/7841/7842/
7851/7852/7853/7854................ 8

Input modes.................................... DIFF, RSE, NRSE (software-selectable; selection applies to all channels)

Type of ADC ................................. Successive approximation

Resolution ..................................... 16 bits, 1 in 65,536

Conversion time

   NI 783*x*/NI 784*x* ........................4 µs

   NI 785*x* ......................................1 µs

Maximum sampling rate

   NI 783*x*/784*x*..............................200 kS/s (per channel)

   NI 785*x* .....................................750 kS/s (per channel)

Input impedance

    Powered on .................................10 GΩ in parallel with
                                100 pF

    Powered off/overload..................4.0 kΩ min

Input signal range ...........................±10 V

Input bias current

    NI 783x .......................................±2 nA

    NI 784x/785x..............................±5 nA

Input offset current

    NI 783x .......................................±1 nA

    NI 784x/785x..............................±5 nA

Input coupling ................................. DC

Maximum working voltage
(signal + common mode) ................ Inputs should remain
                                      within ±12 V of ground

Overvoltage protection

    Powered on ................................. ±42 V

    Powered off ............................... ±35 V

## Accuracy Information

NI 783x

| Nominal Range (V) | | Absolute Accuracy | | | | | | | Relative Accuracy | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | % of Reading | | | Noise + Quantization (μV) | | | Absolute Accuracy at Full Scale (±mV) | Resolution (μV) | |
| Positive Full Scale | Negative Full Scale | 24 Hours | 1 Year | Offset (μV) | Single Point | Averaged | Temp Drift (%/°C) | | Single Point | Averaged |
| 10.0 | −10.0 | 0.0496 | 0.0507 | 2,542 | 1,779 | 165 | 0.0005 | 7.78 | 2,170 | 217 |

**Note**: Accuracies are valid for measurements following an internal calibration. Averaged numbers assume dithering and averaging of 100 single-channel readings. Measurement accuracies are listed for operational temperatures within ±1 °C of internal calibration temperature and ±10 °C of external or factory-calibration temperature.

NI 784x/785x

| Nominal Range (V) | | Absolute Accuracy | | | | | | | Relative Accuracy | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | % of Reading | | | Noise + Quantization (μV) | | | Absolute Accuracy at Full Scale (±mV) | Resolution (μV) | |
| Positive Full Scale | Negative Full Scale | 24 Hours | 1 Year | Offset (μV) | Single Point | Averaged | Temp Drift (%/°C) | | Single Point | Averaged |
| 10.0 | −10.0 | 0.0186 | 0.0228 | 1,591 | 1,029 | 91.6 | 0.0005 | 3.97 | 1,205 | 121 |

**Note**: Accuracies are valid for measurements following an internal calibration. Averaged numbers assume dithering and averaging of 100 single-channel readings. Measurement accuracies are listed for operational temperatures within ±1 °C of internal calibration temperature and ±10 °C of external or factory-calibration temperature.

## DC Transfer Characteristics

INL

    NI 783*x* ....................................... ±3 LSB typ, ±6 LSB max

    NI 784*x*/785*x* ............................. ±1 LSB typ, ±3 LSB max

DNL

    NI 783*x* ....................................... −1.0 to +2.0 LSB max

    NI 784*x*/785*x* ............................. ±0.4 LSB typ,
                                             ±0.9 LSB max

No missing codes

    NI 783*x* ....................................... 16 bits typ, 15 bits min

    NI 784*x*/785*x* ............................. 16 bits guaranteed

CMRR, DC to 60 Hz....................... −86 dB

## Dynamic Characteristics

Bandwidth

  NI 783*x*

      Small signal (−3 dB) .............. 650 kHz

      Large signal (1% THD) ......... 55 kHz

  NI 784*x*/785*x*

      Small signal (−3 dB) .............. 1 MHz

      Large signal (1% THD) ......... 500 kHz

## Settling Time

| Device | Step Size | Accuracy | | |
|---|---|---|---|---|
| | | ±16 LSB | ±4 LSB | ±2 LSB |
| NI 783*x* | ±20.0 V | 7.5 µs | 10.3 µs | 40 µs |
| | ±2.0 V | 2.7 µs | 4.1 µs | 5.1 µs |
| | ±0.2 V | 1.7 µs | 2.9 µs | 3.6 µs |
| NI 784*x*/ 785*x* | ±20.0 V | 2.1 µs | 4.2 µs | 8 µs |
| | ±2.0 V | 1.3 µs | 1.6 µs | 1.8 µs |
| | ±0.2 V | 0.8 µs | 1.1 µs | 1.2 µs |

Crosstalk ........................................ −80 dB, DC to 100 kHz

# Analog Output (NI 783x/784x/785x Only)

## Output Characteristics

Output type .....................................Single-ended, voltage output

Number of channels

NI 7830 ......................................4

NI 7831/7833/7841/7842/ 7851/7852/7853/7854 ................8

Resolution ...................................... 16 bits, 1 in 65,536

Update time.................................... 1.0 µs

Maximum update rate .................... 1 MS/s

Type of DAC ................................. Enhanced R-2R

## Accuracy Information

| Nominal Range (V) | | Absolute Accuracy | | | | Absolute Accuracy at Full Scale (mV) |
|---|---|---|---|---|---|---|
| | | % of Reading | | | | |
| Positive Full Scale | Negative Full Scale | 24 Hours | 1 Year | Offset (µV) | Temp Drift (%/°C) | |
| 10.0 | −10.0 | 0.0335 | 0.0351 | 2366 | 0.0005 | 5.88 |

**Note**: Accuracies are valid for analog output following an internal calibration. Analog output accuracies are listed for operation temperatures within ±1 °C of internal calibration temperature and ±10 °C of external or factory calibration temperature. Temp Drift applies only if ambient is greater than ±10 °C of previous external calibration.

## DC Transfer Characteristics

INL .................................................±0.5 LSB typ, ±4.0 LSB max

DNL................................................±0.5 LSB typ, ±1 LSB max

Monotonicity ..................................16 bits, guaranteed

## Voltage Output

Range...............................................±10 V

Output coupling...............................DC

Output impedance

NI 783x ......................................1.25 Ω

NI 784x/785x..............................0.5 Ω

Current drive...................................±2.5 mA

Protection........................................Short-circuit to ground

Power-on state ................................User configurable

## Dynamic Characteristics

Settling time

| Step Size | Accuracy | | |
|---|---|---|---|
| | ±16 LSB | ±4 LSB | ±2 LSB |
| ±20.0 V | 6.0 µs | 6.2 µs | 7.2 µs |
| ±2.0 V | 2.2 µs | 2.9 µs | 3.8 µs |
| ±0.2 V | 1.5 µs | 2.6 µs | 3.6 µs |

Slew rate ........................................ 10 V/µs

Noise ............................................. 150 µV$_{rms}$, DC to 1 MHz

Glitch energy at midscale transition ..................... ±200 mV for 3 µs

## Digital I/O

Number of channels

NI 781x ...................................... 160

NI 7830...................................... 56

NI 7831/7833/7841/7842/
7851/7852/7853/7854................. 96

Compatibility ................................ TTL

Digital logic levels

| Level | Min | Max |
|---|---|---|
| Input low voltage ($V_{IL}$) | 0.0 V | 0.8 V |
| Input high voltage ($V_{IH}$) | 2.0 V | 5.5 V |
| Output low voltage ($V_{OL}$), where $I_{OUT}$ = –4 mA | 0 V | 0.4 V |
| Output high voltage ($V_{OH}$), where $I_{OUT}$ = 4 mA | 2.4 V | 3.3 V |

Output current

Source......................................... 4.0 mA

Sink........................................... 4.0 mA

Input leakage current ..................... ±10 µA

Power-on state................................ Programmable, by line

Protection

Input

NI 781x/783x.......................... –0.5 to 7.0 V, single line

NI 784x/785x .......................... –20.0 to 20.0 V, single line

Output....................................... Short-circuit
(up to eight lines may be
shorted at a time)

Minimum pulse width

Input........................................... 25 ns

Output....................................... 12.5 ns

Minimum sampling period............. 5 ns

## Reconfigurable FPGA

NI 7811/7830/7831

FPGA type ................................. Virtex-II V1000

Number of flip-flops .................. 10,240

Number of 4-input LUTs ............ 10,240

Number of $18 \times 18$ multipliers ...40

Embedded block RAM .............. 720 kbits

NI 7813/7833

FPGA type ................................. Virtex-II V3000

Number of flip-flops .................. 28,672

Number of 4-input LUTs ............ 28,672

Number of $18 \times 18$ multipliers ...96

Embedded block RAM .............. 1,728 kbits

NI 7841/7851

FPGA type ................................. Virtex-5 LX30

Number of flip-flops .................. 19,200

Number of 6-input LUTs ............ 19,200

Number of DSP48
slices ($25 \times 18$ multipliers) .........32

Embedded block RAM .............. 1,152 kbits

NI 7842/7852

FPGA type ................................. Virtex-5 LX50

Number of flip-flops .................. 28,800

Number of 6-input LUTs ............ 28,800

Number of DSP48
slices ($25 \times 18$ multipliers) .........48

Embedded block RAM .............. 1,728 kbits

NI 7853

FPGA type ................................. Virtex-5 LX85

Number of flip-flops .................. 51,840

Number of 6-input LUTs ............ 51,840

Number of DSP48
slices ($25 \times 18$ multipliers) .........48

Embedded block RAM .............. 3,456 kbits

NI 7854

FPGA type ................................. Virtex-5 LX110

Number of flip-flops .................. 69,120

Number of 6-input LUTs ............ 69,120

Number of DSP48
slices ($25 \times 18$ multipliers) .........64

Embedded block RAM .............. 4,608 kbits

Timebase ....................................... 40, 80, 120, 160,
or 200 MHz

Timebase reference sources

 PCI-781*x*/783*x* ............................Onboard clock only

 PCIe-784*x*/785*x* .........................Onboard clock only

 PXI-78*xx* ....................................Onboard clock, phase-locked to PXI 10 MHz clock

Timebase accuracy, onboard clock ..................................±100 ppm, 250 ps peak-to-peak jitter

Phase locked to PXI 10 MHz Clock (PXI-78*xx* only) ....................Adds 350 ps peak-to-peak jitter

Additional frequency-dependent peak-to-peak jitter

 NI 781*x*/783*x*

  40 MHz...................................None

  80 MHz...................................400 ps

  120 MHz.................................720 ps

  160 MHz.................................710 ps

  200 MHz.................................700 ps

 NI 784*x*/785*x*

  40 MHz...................................None

  80 MHz...................................460 ps

  120 MHz.................................172 ps

  160 MHz.................................172 ps

  200 MHz.................................152 ps

## Calibration (NI 783*x*/784*x*/785*x* Only)

Recommended warm-up time .........15 minutes

Calibration interval.........................1 year

Onboard calibration reference

 DC level .....................................5.000 V (±3.5 mV) (actual value stored in Flash memory)

 Temperature coefficient..............±5 ppm/°C max

 Long-term stability ....................±20 ppm/$\sqrt{1,000 \text{ h}}$

**Note** Refer to *Calibration Certificates* at ni.com/calibration to generate a calibration certificate for the NI 78*xx*.

## Bus Interface

PCI/PCIe/PXI................................. Master, slave

Data transfers ................................. DMA, interrupts, programmed I/O

Number of DMA channels.............. 3

## Power Requirement

+5 VDC (±5%)[1]

 NI 781*x*...................................... 9 mA typ

 NI 7830/7831.............................. 330 mA typ

 NI 7833....................................... 364 mA typ

 PXI-7841/7851 ........................... 125 mA typ

 PXI-7842/7852 ........................... 136 mA typ

 NI 7853....................................... 460 mA typ

 NI 7854....................................... 484 mA typ

+3.3 VDC (±5%)[2]

 NI 7811....................................... 650 mA typ

 NI 7813....................................... 850 mA typ

 NI 7830/7831.............................. 462 mA typ

 NI 7833....................................... 727 mA typ

 PCIe-7841/7851 ......................... 847 mA typ

 PCIe-7842/7852 ......................... 984 mA typ

 PXI-7841/7851 ........................... 525 mA typ

 PXI-7842/7852 ........................... 604 mA typ

 NI 7853....................................... 640 mA typ

 NI 7854....................................... 843 mA typ

+12 V

 NI 784*x*/785*x* .............................. 0.5 A

−12 V

 PXI-784*x*/785*x* ........................... 0.25 A

+5V terminal

 Connector 0 ................................ 0.5 A max[3]

 Connector 1 ................................ 0.5 A max[3]

 Connector 2 ................................ 0.5 A max[3]

 All connectors ............................ 1.5 A max[3, 4]

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[1] Does not include current drawn from the +5 V line on the I/O connectors.

[2] Does not include current sourced by the digital outputs.

[3] **(PCIe-78*xx* only)** Total maximum terminal current for all connectors is 100 mA unless disk drive connector is attached.

[4] **(NI 784*x*/785*x* only)** The NI 784*x*/785*x* has a user-replaceable socketed fuse that opens when current exceeds the current specification. Refer to the *Multifunction Reconfigurable I/O User Manual*, available at ni.com/docs, for information about fuse replacement.

To calculate the total current sourced by the digital outputs, use the following equation:

$$\sum_{i=1}^{j} \text{current sourced on channel } i$$

Power available at I/O connectors .. 4.50 to 5.25 VDC at 1 A total, 250 mA per I/O connector pin

## Physical

Dimensions (not including connectors)

PCI-781x/783x............................ 17 cm by 11 cm (6.7 in. by 4.3 in.)

PCIe-784x/785x .......................... 17 cm by 11 cm (6.7 in. by 4.3 in.)

PXI-78xx.................................... 16 cm by 10 cm (6.3 in. by 3.9 in.)

Weight

PCI-781x/783x............................ 112 g

PCIe-784x/785x .......................... 127 g

PXI-78xx.................................... 152 g

I/O connectors

NI 781x ..................................... Four 68-pin female high-density VHDCI type

NI 7830..................................... Two 68-pin female high-density VHDCI type

NI 783x/784x/785x ..................... Three 68-pin female high-density VHDCI type

Disk drive power connector
(PCIe devices)................................ Standard ATX peripheral connector (not serial ATA)

## Maximum Working Voltage (NI 783x/784x/785x Only)

Maximum working voltage refers to the signal voltage plus the common-mode voltage.

Channel-to-earth ............................ ±12 V, Measurement Category I

Channel-to-channel ........................ ±24 V, Measurement Category I

⚠ **Caution** Do *not* use the NI 783x/784x/785x for connection to signals in Measurement Categories II, III, or IV.

## Environmental

The NI 78xx is intended for indoor use only.

### Operating Environment

NI 781x ...........................................0 °C to 55 °C, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

NI 7830, NI 7831

40 MHz or 80 MHz timebase .....0 °C to 55 °C, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

PCI/PXI-7833

40 MHz timebase ........................0 °C to 55 °C, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

80 MHz timebase ........................0 °C to 55 °C except the following: 0 °C to 45 °C when installed in an PXI-1000/B or PXI-101X, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

PXI-7841/7842/7851/7852/7853/7854

40 MHz timebase ........................0 °C to 55 °C, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

80 MHz timebase ........................0 °C to 55 °C except the following: 0 °C to 45 °C when installed in an PXI-1000/B or PXI-101X, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

PCIe-7841/7842/7851/7852

40 MHz or 80 MHz timebase .....0 °C to 40 °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.

Altitude..........................................2,000 m at 25 °C ambient temperature

## Storage Environment

PCI/PXI-781*x*/783*x* ..........................–20 °C to 70 °C, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

PCIe-784*x*/785*x* ..............................–20 °C to 70 °C, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

PXI-784*x*/785*x*.................................–40 °C to 70 °C, tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.

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.

**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.

## Shock and Vibration (for PXI-78*xx* 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 $g_{rms}$

   Nonoperating .............................5 Hz to 500 Hz, 2.4 $g_{rms}$, tested in accordance with IEC-60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3.

## Safety

The NI 78*xx* 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 the *Online Product Certification* section.

## Electromagnetic Compatibility

The NI 78*xx* is designed to meet the requirements of the following standards of EMC for electrical equipment for measurement, control, and laboratory use:

- EN 61326 (IEC 61326): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

**Note** For the standards applied to assess the EMC of this product, refer to the *Online Product Certification* section.

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

## CE Compliance $\mathC\mathE$

This product meets the essential requirements of applicable European Directives as follows:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

## Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and 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 *NI and the Environment* 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 their life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit ni.com/environment/weee.htm.

### 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.)

## Device Pinouts
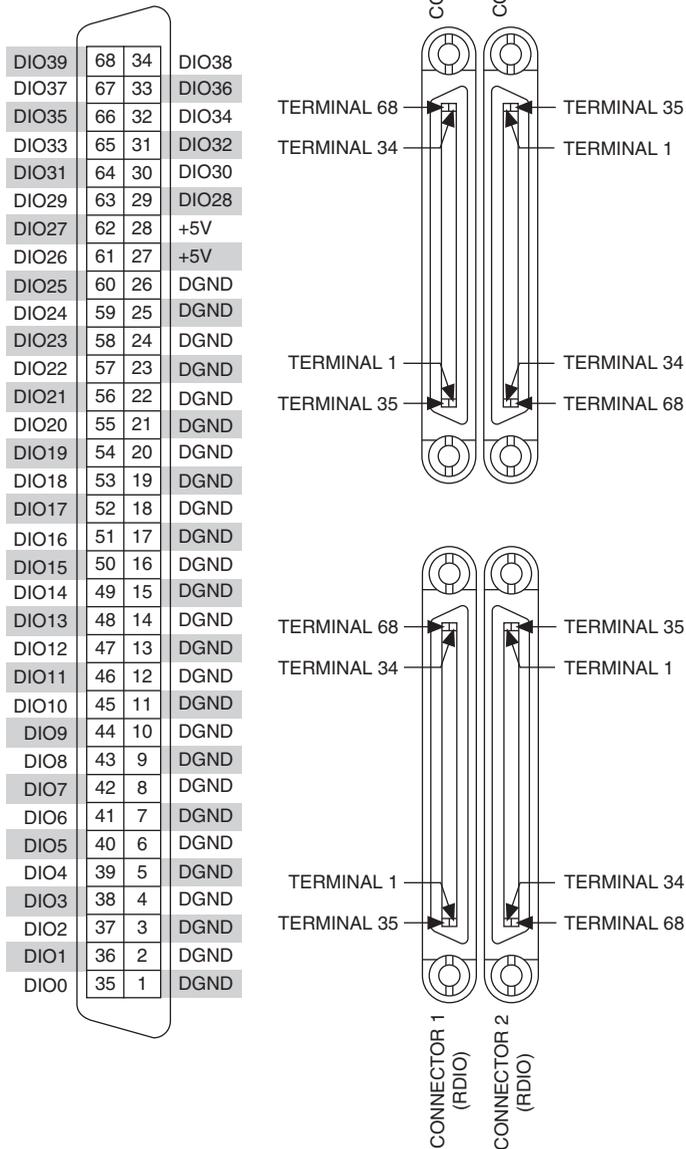


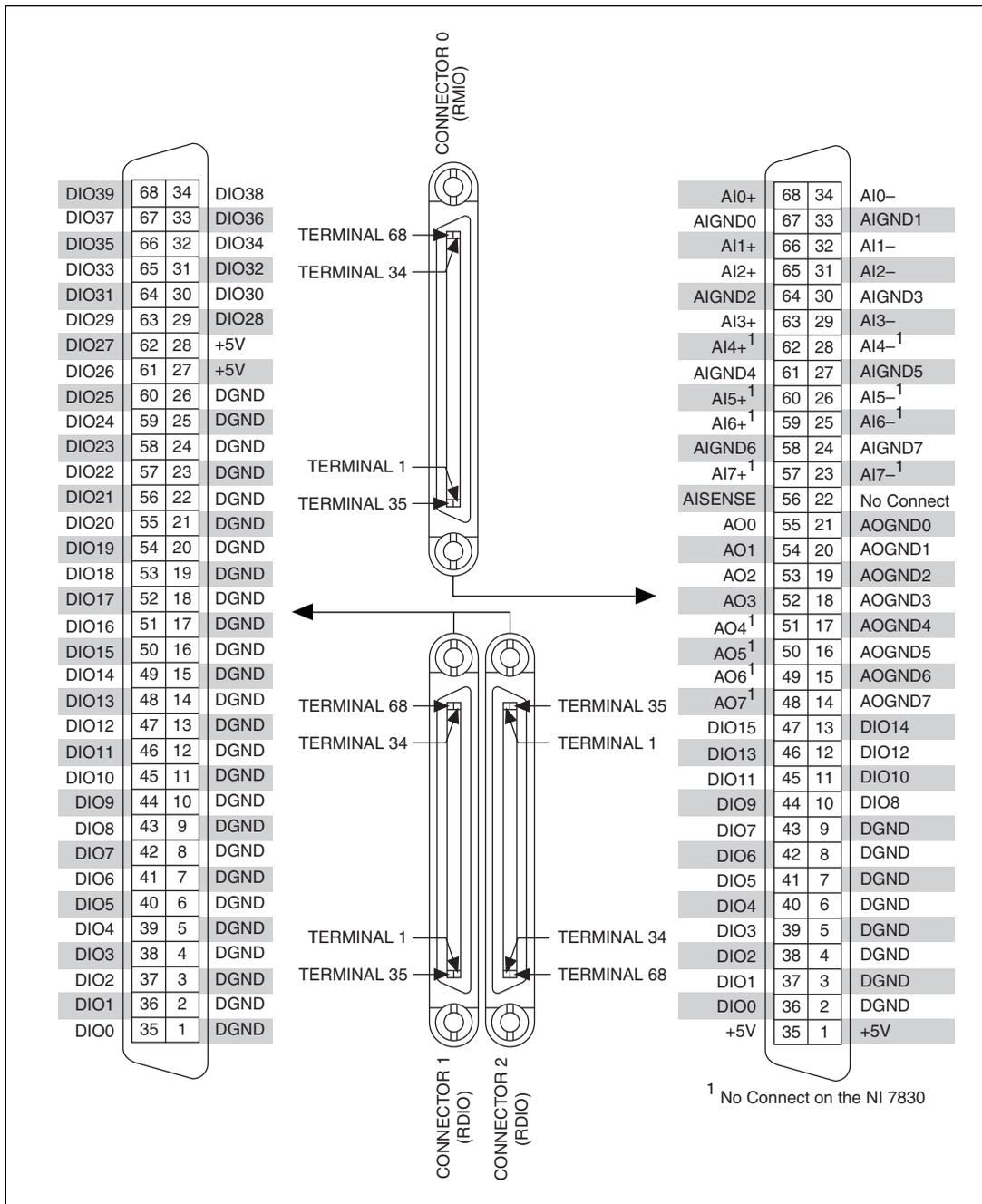**Figure 1.** NI 781*x* Connector Pin Assignments and Locations

CONNECTOR 0 (RMIO)

| | Pin | Pin | |
|---|---|---|---|
| DIO39 | 68 | 34 | DIO38 |
| DIO37 | 67 | 33 | DIO36 |
| DIO35 | 66 | 32 | DIO34 |
| DIO33 | 65 | 31 | DIO32 |
| DIO31 | 64 | 30 | DIO30 |
| DIO29 | 63 | 29 | DIO28 |
| DIO27 | 62 | 28 | +5V |
| DIO26 | 61 | 27 | +5V |
| DIO25 | 60 | 26 | DGND |
| DIO24 | 59 | 25 | DGND |
| DIO23 | 58 | 24 | DGND |
| DIO22 | 57 | 23 | DGND |
| DIO21 | 56 | 22 | DGND |
| DIO20 | 55 | 21 | DGND |
| DIO19 | 54 | 20 | DGND |
| DIO18 | 53 | 19 | DGND |
| DIO17 | 52 | 18 | DGND |
| DIO16 | 51 | 17 | DGND |
| DIO15 | 50 | 16 | DGND |
| DIO14 | 49 | 15 | DGND |
| DIO13 | 48 | 14 | DGND |
| DIO12 | 47 | 13 | DGND |
| DIO11 | 46 | 12 | DGND |
| DIO10 | 45 | 11 | DGND |
| DIO9 | 44 | 10 | DGND |
| DIO8 | 43 | 9 | DGND |
| DIO7 | 42 | 8 | DGND |
| DIO6 | 41 | 7 | DGND |
| DIO5 | 40 | 6 | DGND |
| DIO4 | 39 | 5 | DGND |
| DIO3 | 38 | 4 | DGND |
| DIO2 | 37 | 3 | DGND |
| DIO1 | 36 | 2 | DGND |
| DIO0 | 35 | 1 | DGND |

TERMINAL 68
TERMINAL 34
TERMINAL 1
TERMINAL 35

| | Pin | Pin | |
|---|---|---|---|
| AI0+ | 68 | 34 | AI0– |
| AIGND0 | 67 | 33 | AIGND1 |
| AI1+ | 66 | 32 | AI1– |
| AI2+ | 65 | 31 | AI2– |
| AIGND2 | 64 | 30 | AIGND3 |
| AI3+ | 63 | 29 | AI3– |
| AI4+[1] | 62 | 28 | AI4–[1] |
| AIGND4 | 61 | 27 | AIGND5 |
| AI5+[1] | 60 | 26 | AI5–[1] |
| AI6+[1] | 59 | 25 | AI6–[1] |
| AIGND6 | 58 | 24 | AIGND7 |
| AI7+[1] | 57 | 23 | AI7–[1] |
| AISENSE | 56 | 22 | No Connect |
| AO0 | 55 | 21 | AOGND0 |
| AO1 | 54 | 20 | AOGND1 |
| AO2 | 53 | 19 | AOGND2 |
| AO3 | 52 | 18 | AOGND3 |
| AO4[1] | 51 | 17 | AOGND4 |
| AO5[1] | 50 | 16 | AOGND5 |
| AO6[1] | 49 | 15 | AOGND6 |
| AO7[1] | 48 | 14 | AOGND7 |
| DIO15 | 47 | 13 | DIO14 |
| DIO13 | 46 | 12 | DIO12 |
| DIO11 | 45 | 11 | DIO10 |
| DIO9 | 44 | 10 | DIO8 |
| DIO7 | 43 | 9 | DGND |
| DIO6 | 42 | 8 | DGND |
| DIO5 | 41 | 7 | DGND |
| DIO4 | 40 | 6 | DGND |
| DIO3 | 39 | 5 | DGND |
| DIO2 | 38 | 4 | DGND |
| DIO1 | 37 | 3 | DGND |
| DIO0 | 36 | 2 | DGND |
| +5V | 35 | 1 | +5V |

CONNECTOR 1 (RDIO)
CONNECTOR 2 (RDIO)

TERMINAL 68
TERMINAL 34
TERMINAL 1
TERMINAL 35

TERMINAL 35
TERMINAL 1
TERMINAL 34
TERMINAL 68

[1] No Connect on the NI 7830

**Figure 2.** NI 783x/784x/785x Connector Pin Assignments and Locations