NI PCI-6071E

1.25 MS/s, 12-Bit, 64 Analog Input Multifunction DAQ

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NI 6070E/6071E Family Specifications

This document lists the I/O terminal summary and specifications for the devices that make up the NI 6070E/6071E family. This family includes the following devices:

- NI DAQPad-6070E
- NI PCI-MIO-16E-1 (NI 6070E)
- NI PXI-6070E
- NI PCI-6071E
- NI PXI-6071E

I/O Terminal Summary

Note With NI-DAQmx, National Instruments revised its terminal names so they are easier to understand and more consistent among NI hardware and software products. The revised terminal names used in this document are usually similar to the names they replace. For a complete list of Traditional NI-DAQ (Legacy) terminal names and their NI-DAQmx equivalents, refer to *Terminal Name Equivalents* of the *E Series Help*.

Table 1. I/O Terminals

Terminal Name	Terminal Type and Direction	Impedance Input/ Output	Protection (V) On/Off	Source (mA at V)	Sink (mA at V)	Rise Time (ns)	Bias
AI <0..15>, AI <16..63>†	AI	100 GΩ in parallel with 100 pF	25/15	—	—	—	±200 pA
AI SENSE, AI SENSE 2†	AI	100 GΩ in parallel with 100 pF	25/15	—	—	—	±200 pA
AI GND	—	—	—	—	—	—	—
AO 0	AO	0.1 Ω	Short-circuit to ground	5 at 10	5 at –10	20 V/µs	—
AO 1	AO	0.1 Ω	Short-circuit to ground	5 at 10	5 at –10	20 V/µs	—
AO EXT REF	AI	10 kΩ	25/15	—	—	—	—
AO GND	—	—	—	—	—	—	—

NATIONAL INSTRUMENTS

Table 1. I/O Terminals (Continued)

Terminal Name	Terminal Type and Direction	Impedance Input/ Output	Protection (V) On/Off	Source (mA at V)	Sink (mA at V)	Rise Time (ns)	Bias
D GND	—	—	—	—	—	—	—
+5 V	—	0.1 Ω	Short-circuit to ground	1 A	—	—	—
P0.<0..7>	DIO	—	V_{CC} + 0.5	13 at (V_{CC} – 0.4)	24 at 0.4	1.1	50 kΩ pu
AI HOLD COMP	DO	—	—	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
EXT STROBE*	DO	—	—	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 0/ (AI START TRIG)	AI/DIO	10 kΩ	V_{CC} + 0.5/±35	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	9 kΩ pu, 10 kΩ pd
PFI 1/ (AI REF TRIG)	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 2/ (AI CONV CLK)*	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 3/ CTR 1 SOURCE	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 4/CTR 1 GATE	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
CTR 1 OUT	DO	—	—	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 5/ (AO SAMP CLK)*	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 6/ (AO START TRIG)	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 7/ (AI SAMP CLK)	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 8/ CTR 0 SOURCE	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
PFI 9/CTR 0 GATE	DIO	—	V_{CC} + 0.5	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu
CTR 0 OUT	DO	—	—	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu

Table 1. I/O Terminals (Continued)

Terminal Name	Terminal Type and Direction	Impedance Input/ Output	Protection (V) On/Off	Source (mA at V)	Sink (mA at V)	Rise Time (ns)	Bias
FREQ OUT	DO	—	—	3.5 at (V_{CC} – 0.4)	5 at 0.4	1.5	50 kΩ pu

* Indicates active low.

† NI PCI/PXI-6071E only.

AI = Analog Input DIO = Digital Input/Output pd = pull-down
AO = Analog Output DO = Digital Output pu = pull-up
AI/DIO = Analog Input/Digital Input/Output

Note: The tolerance on the 50 kΩ pull-up resistors is large. Actual value might range between 17 kΩ and 100 kΩ.

Specifications

The following specifications are typical at 25 °C unless otherwise noted.

Analog Input

Input Characteristics

Number of channels

NI 6070E ..... 16 single-ended or 8 differential (software-selectable per channel)

NI 6071E ..... 64 single-ended or 32 differential (software-selectable per channel)

Type of A/D converter (ADC)..... Successive approximation

Resolution ..... 12 bits, 1 in 4,096

Maximum sampling rate ..... 1.25 MS/s

Input signal ranges

Range (Software-Selectable)	Input Range	
	Bipolar	Unipolar
20 V	±10 V	—
10 V	±5 V	0 to 10 V
5 V	±2.5 V	0 to 5 V
2 V	±1 V	0 to 2 V
1 V	±500 mV	0 to 1 V
500 mV	±250 mV	0 to 500 mV
200 mV	±100 mV	0 to 200 mV
100 mV	±50 mV	0 to 100 mV

Input coupling .....DC

Maximum working voltage
(signal and common mode).....Each input should remain within ±11 V of ground

Overvoltage protection

Powered on .....±25 V

Powered off.....±15 V

Inputs protected

NI 6070E.....AI <0..15>, AI SENSE

NI 6071E.....AI <0..63>, AI SENSE, AI SENSE 2

FIFO buffer size

- NI DAQPad-6070E.....2,048 samples (S)
- NI PXI-6070E.....512 S
- NI PCI/PXI-6071E.....512 S
- NI PCI-MIO-16E-1.....512 S

DMA (PCI and PXI only)

- Channels.....3
- Data sources/destinations.....Analog input, analog output, counter/timer 0, or counter/timer 1

Data transfers

- NI DAQPad-6070E.....Interrupts, programmed I/O
- NI PXI-6070E.....DMA, interrupts, programmed I/O
- NI PCI/PXI-6071E.....DMA, interrupts, programmed I/O
- NI PCI-MIO-16E-1.....DMA, interrupts, programmed I/O

DMA modes.....Scatter-gather (single-transfer, demand-transfer)

Configuration memory size.....512 words (1 word = 8 bits)

Accuracy Information

Nominal Range (V)		Absolute Accuracy							Relative Accuracy Resolution (mV)	
		% of Reading			Noise + Quantization (mV)					
Positive Full Scale	Negative Full Scale	24 Hours	1 Year	Offset (mV)	Single Pt.	Averaged	Temp Drift (%/°C)	Absolute Accuracy at Full Scale (mV)	Single Pt.	Averaged
10	–10	0.0672	0.0714	6.38	6.10	0.846	0.0010	14.369	7.37	1.11
5	–5	0.0272	0.0314	3.20	3.05	0.423	0.0005	5.193	3.68	0.557
2.5	–2.5	0.0672	0.0714	1.61	1.53	0.211	0.0010	3.605	1.84	0.278
1	–1	0.0672	0.0714	0.653	0.610	0.085	0.0010	1.452	0.737	0.111
0.5	–0.5	0.0672	0.0714	0.335	0.305	0.042	0.0010	0.735	0.368	0.056
0.25	–0.25	0.0672	0.0714	0.176	0.208	0.024	0.0010	0.379	0.238	0.032
0.1	–0.1	0.0672	0.0714	0.081	0.098	0.011	0.0010	0.163	0.111	0.015
0.05	–0.05	0.0672	0.0714	0.049	0.071	0.007	0.0010	0.091	0.082	0.009
10	0	0.0272	0.0314	3.20	3.05	0.423	0.0005	6.765	3.68	0.557
5	0	0.0672	0.0714	1.61	1.53	0.211	0.0010	5.391	1.84	0.278
2	0	0.0672	0.0714	0.653	0.610	0.085	0.0010	2.167	0.737	0.111
1	0	0.0672	0.0714	0.335	0.305	0.042	0.0010	1.092	0.368	0.056
0.5	0	0.0672	0.0714	0.176	0.208	0.024	0.0010	0.558	0.238	0.032
0.2	0	0.0672	0.0714	0.081	0.098	0.011	0.0010	0.235	0.111	0.015
0.1	0	0.0672	0.0714	0.049	0.071	0.007	0.0010	0.127	0.082	0.009

Note: Accuracies are valid for measurements following an internal E Series 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 recommends a one-year calibration interval. The Absolute Accuracy at Full Scale calculations were performed for a maximum range input voltage (for example, 10 V for the ±10 V range) after one year, assuming 100 points of averaged data. Go to `ni.com/info` and enter info code `rdspec` for example calculations.

Transfer Characteristics

Relative accuracy

- Dithered .....±0.5 LSB typ
- Undithered .....±1.5 LSB max

Differential nonlinearity (DNL) .....±0.5 LSB typ, ±1.0 LSB max

No missing codes.....12 bits, guaranteed

Offset error

- Pregain error after calibration .....±12 µV max
- Pregain error before calibration .....±2.5 mV max
- Postgain error after calibration ...±0.5 mV max
- Postgain error before calibration .....±100 mV max

Gain error (relative to calibration reference)

- After calibration (gain = 1) .....±0.02% of reading max
- Before calibration .....±2.5% of reading max
- Gain ≠ 1 with gain error adjusted to 0 at gain = 1 .....±0.02% of reading max

Amplifier Characteristics

Input impedance

- Normal powered on .....100 GΩ in parallel with 100 pF
- Powered off.....820 Ω min
- Overload.....820 Ω min

Input bias current.....±200 pA

Input offset current .....±100 pA

Common-mode rejection ratio (CMRR), DC to 60 Hz

Range	CMRR
20 V	95 dB
10 V	100 dB
100 mV to 5 V	106 dB

Dynamic Characteristics

Bandwidth

- Small signal (–3 dB) .....1.6 MHz
- Large signal (1% THD) .....1 MHz

Settling time to full-scale step

Device	Range	Accuracy*		
		±0.012% (±0.5 LSB)	±0.024% (±1 LSB)	±0.098% (±4 LSB)
NI 6070E	20 V	2 µS typ, 3 µS max	1.5 µS typ, 2 µS max	1.3 µS typ, 1.5 µS max
	10 V	2 µS typ, 3 µS max	1.5 µS typ, 2 µS max	0.9 µS typ, 1 µS max
	200 mV to 5 V	2 µS typ, 3 µS max	1.5 µS typ, 2 µS max	1 µS typ, 1.5 µS max
	100 mV	2 µS typ, 3 µS max	1.5 µS typ, 2 µS max	1.9 µS typ, 2 µS max
NI 6071E	20 V	3 µS typ, 5 µS max	1.9 µS typ, 2.5 µS max	1.2 µS typ, 1.5 µS max
	10 V	3 µS typ, 5 µS max	1.9 µS typ, 2.5 µS max	1.2 µS typ, 1.3 µµS max
	200 mV to 5 V	3 µS typ, 5 µS max	1.9 µS typ, 2.5 µS max	1.2 µS typ, 1.5 µS max
	100 mV	3 µS typ, 5 µS max	1.9 µS typ, 2.5 µS max	1.3 µS typ, 1.5 µS max

* Accuracy values are valid for source impedances <1 kΩ. Refer to *Multichannel Scanning Considerations* of the *E Series Help* for more information.

System noise (LSB_{rms}, not including quantization)

Range	Dither Off	Dither On
1 to 20 V	0.25	0.5
500 mV	0.4	0.6
200 mV	0.5	0.7
100 mV	0.8	0.9

Crosstalk (DC to 100 kHz)

Adjacent channels.....–75 dB

All other channels.....–90 dB

Stability

Offset temperature coefficient

Pregain.....±5 µV/°C

Postgain.....±240 µV/°C

Gain temperature coefficient.....±20 ppm/°C

Analog Output

Output Characteristics

Number of channels .....2 voltage outputs

Resolution.....12 bits, 1 in 4,096

Max update rate, waveform generation

FIFO Mode		Non-FIFO Mode	
Internally Timed	Externally Timed	1 Channel	2 Channels
1 MS/s	950 kS/s	800 kS/s, system dependent	400 kS/s, system dependent

Type of D/A converter (DAC) .....Double-buffered, multiplying

FIFO buffer size .....2,048 S

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

DMA modes .....Scatter-gather (single-transfer, demand-transfer)

Accuracy Information

Nominal Range (V)		Absolute Accuracy					Absolute Accuracy at Full Scale (mV)
		% of Reading			Offset (mV)	Temp Drift (%/°C)	
Positive Full Scale	Negative Full Scale	24 Hours	90 Days	1 Year			
10	–10	0.0177	0.0197	0.0219	±5.93	0.0005	8.127
10	0	0.0177	0.0197	0.0219	±3.49	0.0005	5.685

Note: Accuracies are valid for measurements following an internal E Series 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 recommends a one-year calibration interval. The Absolute Accuracy at Full Scale calculations were performed for a maximum range input voltage (for example, 10 V for the ±10 V range) after one year, assuming 100 points of averaged data. Go to `ni.com/info` and enter info code `rdspec` for example calculations.

Transfer Characteristics

Relative accuracy, or integral nonlinearity (INL)
- After calibration ..... ±0.3 LSB typ, ±0.5 LSB max
- Before calibration ..... ±4 LSB max

DNL
- After calibration ..... ±0.3 LSB typ, ±1.0 LSB max
- Before calibration ..... ±3 LSB max

Monotonicity ..... 12 bits, guaranteed after calibration

Offset error
- After calibration ..... ±1.0 mV max
- Before calibration ..... ±200 mV max

Gain error (relative to external reference) ..... 0 to 0.67% of output max, not adjustable

Voltage Output

Ranges ..... ±10 V, 0 to 10 V, ±AO EXT REF, 0 to AO EXT REF (software-selectable)

Output coupling ..... DC

Output impedance ..... 0.1 Ω max

Current drive ..... ±5 mA max

Protection ..... Short-circuit to ground

Power-on state ..... 0 V (± 200 mV)

External reference input
- Range ..... ±11 V
- Overvoltage protection
  - Powered on ..... ±25 V
  - Powered off ..... ±15 V
- Input impedance ..... 10 kΩ
- Bandwidth (–3 dB) ..... 1 MHz

Dynamic Characteristics

Settling time for full-scale step ..... 3 µs to ±0.5 LSB accuracy

Slew rate ..... 20 V/µs

Noise ..... 200 μV_{rms}, DC to 1 MHz

Glitch energy (at mid-scale transition)
- Magnitude
  - Reglitching disabled ..... ±20 mV
  - Reglitching enabled ..... ±4 mV
- Duration ..... 1.5 µs

Stability

Offset temperature coefficient ..... ±50 µV/°C

Gain temperature coefficient
- Internal reference ..... ±25 ppm/°C
- External reference ..... ±25 ppm/°C

Digital I/O

Number of channels ..... 8 input/output

Compatibility ..... 5 V/TTL

Digital logic levels on P0.<0..7>

Level	Min	Max
Input low voltage	0 V	0.8 V
Input high voltage	2.0 V	5.0 V
Input low current (V_{in} = 0 V)	—	–320 µA
Input high current (V_{in} = 5 V)	—	10 µA
Output low voltage (I_{OL} = 24 mA)	—	0.4 V
Output high voltage (I_{OH} = –13 mA)	4.35 V	—

Power-on state..... Input (high-impedance)

Data transfers ..... Programmed I/O

Transfer rate (1 word = 8 bits), maximum with NI-DAQ, system-dependent

- NI DAQPad-6070E ..... 5 kwords/s
- NI PXI-6070E..... 50 kwords/s
- NI PCI/PXI-6071E ..... 50 kwords/s
- NI PCI-MIO-16E-1 ..... 50 kwords/s

Constant sustainable rate ..... 1 to 10 kwords/s, typ

Timing I/O

Number of channels ..... 2 up/down counter/timers, 1 frequency scaler

Resolution

- Counter/timers ..... 24 bits
- Frequency scaler..... 4 bits

Compatibility ..... 5 V/TTL

Base clocks available

- Counter/timers ..... 20 MHz, 100 kHz
- Frequency scaler..... 10 MHz, 100 kHz

Base clock accuracy..... ±0.01%

Max source frequency..... 20 MHz

Min source pulse duration..... 10 ns, edge-detect mode

Min gate pulse duration..... 10 ns, edge-detect mode

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

DMA modes ..... Scatter-gather (single-transfer, demand-transfer)

Triggers

Analog Trigger

Source..... All analog input channels, external trigger (PFI 0/AI START TRIG)

Purpose

- Analog input ..... Start, reference, and pause trigger, sample clock
- Analog output ..... Start and pause trigger, sample clock
- Counter/timers ..... Source, gate

Level

- Internal ..... ±Full-scale
- External ..... ±10 V

Slope..... Positive or negative (software-selectable)

Resolution..... 8 bits, 1 in 256

Hysteresis ..... Programmable

Bandwidth (–3 dB)

- Internal ..... 2 MHz
- External ..... 7 MHz

External input (PFI 0/AI START TRIG)

- Impedance..... 10 kΩ
- Coupling..... DC
- Protection
  - When configured as a digital signal ..... –0.5 to V_{CC} + 0.5 V
  - When configured as an analog trigger signal or disabled ..... ±35 V
  - Powered off ..... ±35 V

Digital Trigger

Purpose

- Analog input ..... Start, reference, and pause trigger, sample clock
- Analog output ..... Start and pause trigger, sample clock
- Counter/timers ..... Source, gate

External sources ..... PFI <0..9>, RTSI <0..6>

Compatibility ..... 5 V TTL

Response ..... Rising or falling edge

Pulse width ..... 10 ns min

RTSI Trigger

PCI 7

DAQPad 4

PXI Trigger Bus (PXI Only)

Trigger lines 6

Star trigger 1

Calibration

Recommended warm-up time

- NI DAQPad-6070E ..... 30 minutes
- NI PXI-6070E ..... 15 minutes
- NI PCI/PXI-6071E ..... 15 minutes
- NI PCI-MIO-16E-1 ..... 15 minutes

Calibration interval ..... 1 year

Onboard calibration reference

- Level ..... 5.000 V (±3.5 mV), over full operating temperature, actual value stored in EEPROM
- Temperature coefficient ..... ±5 ppm/°C max
- Long-term stability ..... $\pm 15 \text{ ppm}/\sqrt{1{,}000 \text{ h}}$

Bus Interface

Type ..... Master, slave

Power

Bus Requirement

PCI/PXI-6070E/6071E
+5 VDC (±5%) ..... 1.1 A

DAQPad-6070E
9 to 25 VDC ..... 17 W

Note Excludes power consumed through +5 V available at the I/O connector.

I/O Connector Power

Power available at I/O connector .... +4.65 to +5.25 VDC at 1 A

Discharge time with BP–1 battery pack DAQPad-6070E ..... 2.5 h

Physical

Dimensions (not including connectors)

- NI DAQPad-6070E ..... 30.7 cm × 25.4 cm × 4.3 cm (12.1 in. × 10 in. × 1.7 in.)
- NI PXI-6070E/6071E ..... 16 cm × 10 cm (6.3 in. × 3.9 in.)
- NI PCI-6071E, NI PCI-MIO-16E-1 ..... 17.5 cm × 10.7 cm (6.9 in. × 4.2 in.)

Weight

- NI DAQPad-6070E ..... 1955 g (4 lb 4.9 oz)
- NI PXI-6070E ..... 203 g (7.1 oz)
- NI PCI-6071E/ NI PCI-MIO-16E-1 ..... 115 g (4.1 oz)
- NI PXI-6071E ..... 214 g (7.5 oz)

I/O connector

- NI 6070E ..... 68-pin male 0.050 D-type
- NI 6071E ..... 100-pin female 0.050 D-type

Maximum Working Voltage

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

NI DAQPad-6070E

- Channel-to-earth ..... 11 V, Installation Category I
- Channel-to-channel ..... 11 V, Installation Category I

NI PXI-6070E, NI PCI/PXI-6071E, NI PCI-MIO-16E-1

Channel-to-earth ..... 11 V, Installation Category I

Channel-to-channel ..... 11 V, Installation Category I

Environmental

Operating temperature ..... 0 to 55 °C

Storage temperature ..... –20 to 70 °C

Relative humidity ..... 10 to 90%, noncondensing

Maximum altitude ..... 2,000 m

Pollution Degree (indoor use only) 2

NI PCI-6071E OEM

Maximum ambient temperature ..... 50 °C for use in Class 1, Division 2 hazardous locations

Safety

NI PCI-MIO-16E-1, PXI-6070E, PCI/PXI-6071E

These devices 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
- CAN/CSA-C22.2 No. 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.

NI DAQPad-6070E

The device meets the requirements of the following standards for safety and electrical equipment for measurement, control, and laboratory use:

- IEC 60950-1, EN 60950-1
- UL 60950-1
- CAN/CSA-C22.2 No. 60950-1

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

Emissions ..... EN 55011 Class A at 10 m
FCC Part 15A above 1 GHz

Immunity ..... EN 61326:1997 A2:2001, Table 1

CE, C-Tick, and FCC Part 15 (Class A) Compliant

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

CE Compliance

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

Low-Voltage Directive (safety) 73/23/EEC

Electromagnetic Compatibility Directive (EMC) 89/336/EEC

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.

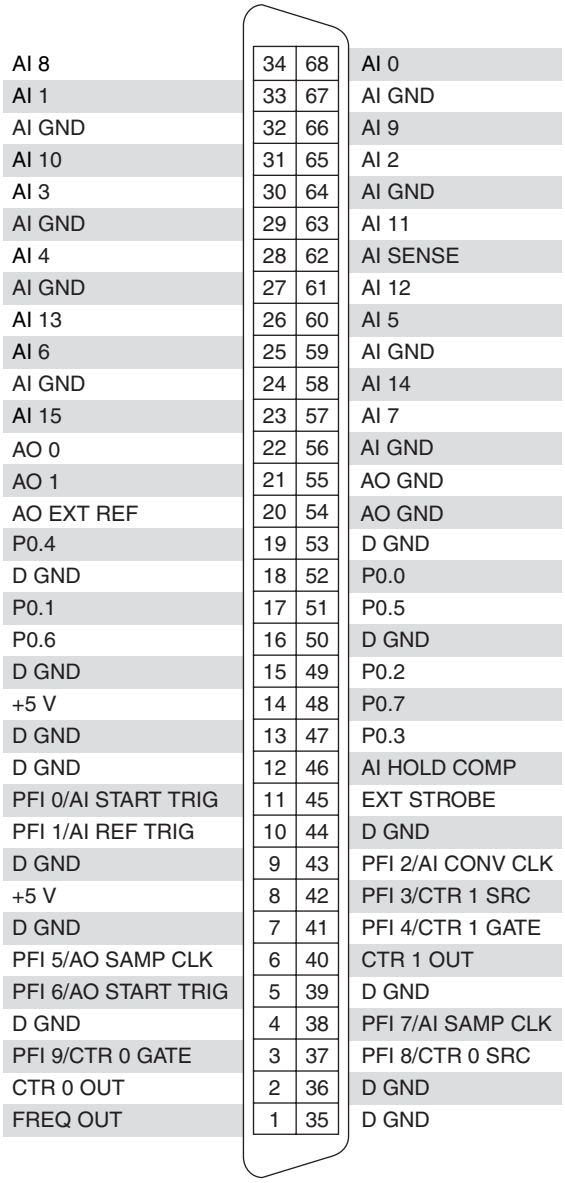

Figure 1. NI PXI-6070E/PCI-MIO-16E-1 Pinout

PFI 9	2	1	P0.7
PFI 8	4	3	P0.6
PFI 7	6	5	P0.5
PFI 6	8	7	P0.4
PFI 5	10	9	P0.3
PFI 4	12	11	P0.2
PFI 3	14	13	P0.1
PFI 2	16	15	P0.0
PFI 1	18	17	CTR 1 OUT
D GND	20	19	D GND
USER 2	22	21	USER 1
FREQ OUT	24	23	AI HOLD COMP
+5 V	26	25	EXT STROBE
+5 V	28	27	AI SENSE
D GND	30	29	AI GND

Figure 2. NI DAQPad-6070E BNC Pinout

AI GND	1	51	AI 16
AI GND	2	52	AI 24
AI 0	3	53	AI 17
AI 8	4	54	AI 25
AI 1	5	55	AI 18
AI 9	6	56	AI 26
AI 2	7	57	AI 19
AI 10	8	58	AI 27
AI 3	9	59	AI 20
AI 11	10	60	AI 28
AI 4	11	61	AI 21
AI 12	12	62	AI 29
AI 5	13	63	AI 22
AI 13	14	64	AI 30
AI 6	15	65	AI 23
AI 14	16	66	AI 31
AI 7	17	67	AI 32
AI 15	18	68	AI 40
AI SENSE	19	69	AI 33
AO 0	20	70	AI 41
AO 1	21	71	AI 34
AO EXT REF	22	72	AI 42
AO GND	23	73	AI 35
D GND	24	74	AI 43
P0.0	25	75	AI SENSE 2
P0.4	26	76	AI GND
P0.1	27	77	AI 36
P0.5	28	78	AI 44
P0.2	29	79	AI 37
P0.6	30	80	AI 45
P0.3	31	81	AI 38
P0.7	32	82	AI 46
D GND	33	83	AI 39
+5 V	34	84	AI 47
+5 V	35	85	AI 48
AI HOLD COMP	36	86	AI 56
EXT STROBE	37	87	AI 49
PFI 0/AI START TRIG	38	88	AI 57
PFI 1/AI REF TRIG	39	89	AI 50
PFI 2/AI CONV CLK	40	90	AI 58
PFI 3/CTR 1 SRC	41	91	AI 51
PFI 4/CTR 1 GATE	42	92	AI 59
CTR 1 OUT	43	93	AI 52
PFI 5/AO SAMP CLK	44	94	AI 60
PFI 6/AO START TRIG	45	95	AI 53
PFI 7/AI SAMP CLK	46	96	AI 61
PFI 8/CTR 0 SRC	47	97	AI 54
PFI 9/CTR 0 GATE	48	98	AI 62
CTR 0 OUT	49	99	AI 55
FREQ OUT	50	100	AI 63

Figure 3. NI 6071E Pinout