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PCI-6036E

NI 6034E/6035E/6036E Family Specifications

This document lists the I/O terminal summary and specifications for the devices that make up the NI 6034E/6035E/6036E family of devices. This family includes the following devices:

- NI PCI-6034E
- NI PCI-6035E
- NI DAQCard-6036E
- NI PCI-6036E

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	100 G Ω in parallel with 100 pF	25/15	—	—	—	± 200 pA
AI SENSE	AI	100 G Ω 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	—	—
AO 1 [†]	AO	0.1 Ω	Short-circuit to ground	5 at 10	5 at -10	—	—
AO GND	—	—	—	—	—	—	—
D GND	—	—	—	—	—	—	—

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
+5 V	—	0.1 Ω	Short-circuit to ground	1 A fused	—	—	—
P0.<0..7>	DIO	—	$V_{CC} + 0.5$	13 at ($V_{CC} - 0.4$)	24 at 0.4	1.1	50 k Ω pu
AI HOLD COMP	DO	—	—	3.5 at ($V_{CC} - 0.4$)	5 at 0.4	1.5	50 k Ω pu
EXT STROBE*	DO	—	—	3.5 at ($V_{CC} - 0.4$)	5 at 0.4	1.5	50 k Ω pu
PFI 0/ (AI START TRIG)	DIO	—	$V_{CC} + 0.5$	3.5 at ($V_{CC} - 0.4$)	5 at 0.4	1.5	50 k Ω pu
PFI 1/ (AI REF TRIG)	DIO	—	$V_{CC} + 0.5$	3.5 at ($V_{CC} - 0.4$)	5 at 0.4	1.5	50 k Ω 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 k Ω 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 k Ω 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 k Ω pu
CTR 1 OUT	DO	—	—	3.5 at ($V_{CC} - 0.4$)	5 at 0.4	1.5	50 k Ω 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 k Ω 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 k Ω 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 k Ω 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 k Ω 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 k Ω pu
CTR 0 OUT	DO	—	—	3.5 at ($V_{CC} - 0.4$)	5 at 0.4	1.5	50 k Ω 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
<p>* Indicates active low. † NI 6035E/6036E only. AI = Analog Input DIO = Digital Input/Output pu = pull-up AO = Analog Output DO = Digital Output</p> <p>Note: The tolerance on the 50 kΩ pull-up resistors is large. Actual value might range between 17 kΩ and 100 kΩ.</p>							

Specifications

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

Analog Input

Input Characteristics

Number of channels 16 single-ended or 8 differential (software-selectable per channel)

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

Resolution 16 bits, 1 in 65,536

Max sampling rate 200 kS/s guaranteed

Input signal ranges

Range (Software-Selectable)	Bipolar Input Range
20 V	±10 V
10 V	±5 V
1 V	±500 mV
100 mV	±50 mV

Input coupling DC

Max working voltage (signal + common mode) Each input should remain within ±11 V of ground

Overvoltage protection

Signal	Powered On (V)	Powered Off (V)
AI <0..15>, AI SENSE	±25	±15

FIFO buffer size

NI DAQCard-6036E 1,024 samples (S)

NI 6034E, NI 6035E, NI PCI-6036E 512 S

DMA (PCI only)

Channels 1

Data sources/destinations Analog input, analog output, counter/timer 0, or counter/timer 1

Data transfers Direct memory access (DMA)¹, interrupts, programmed I/O

DMA¹ modes Scatter-gather (single transfer, demand transfer)

Configuration memory size 512 words

¹ DMA is not available on the NI DAQCard-6036E.

Accuracy Information (NI 6034E, NI 6035E, NI PCI-6036E Only)

Nominal Range at Full Scale (V)	Absolute Accuracy							Relative Accuracy Resolution (μV)	
	% of Reading		Offset (μV)	Noise + Quantization (μV)		Temp Drift ($\%/^{\circ}\text{C}$)	Absolute Accuracy at Full Scale (mV)	Single Pt.	Averaged
	24 Hours	1 Year		Single Pt.	Averaged				
± 10	0.0546	0.0588	± 1601	± 933	± 82.4	0.0010	7.56	1,085	108.5
± 5	0.0146	0.0188	± 811	± 467	± 41.2	0.0005	1.79	542	52.24
± 0.5	0.0546	0.0588	± 100	± 56.2	± 5.04	0.0010	0.399	66.3	6.630
± 0.05	0.0546	0.0588	± 28.9	± 28.2	± 2.75	0.0010	0.0611	36.2	3.616

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 $\pm 1^{\circ}\text{C}$ of internal calibration temperature and $\pm 10^{\circ}\text{C}$ 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.

Accuracy Information (NI DAQCard-6036E Only)

Nominal Range at Full Scale (V)		Absolute Accuracy							Relative Accuracy Resolution (μV)	
		% of Reading		Offset (μV)	Noise + Quantization (μV)		Temp Drift ($\%/^{\circ}\text{C}$)	Absolute Accuracy at Full Scale (mV)	Single Pt.	Averaged
Positive Full Scale	Negative Full Scale	24 Hours	1 Year		Single Pt.	Averaged				
+10	-10	0.0549	0.0591	2,602.05	1,500.21	137.329	0.0010	8.653	1,808.17	180.82
+5.0	-5.0	0.0149	0.0191	1,311.53	750.10	68.665	0.0005	2.337	904.08	90.408
+0.5	-0.5	0.0549	0.0591	150.053	84.319	7.782	0.0010	0.454	102.463	10.246
+0.05	-0.05	0.0549	0.0591	33.905	32.779	3.204	0.0010	0.067	42.191	4.219

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 $\pm 1^{\circ}\text{C}$ of internal calibration temperature and $\pm 10^{\circ}\text{C}$ 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

Integral nonlinearity (INL)

NI DAQCard-6036E.....	±3 LSB typ, ±6 LSB max
NI 6034E, NI 6035E, NI PCI-6036E.....	±1.5 LSB typ, ±3.0 LSB max

Differential nonlinearity (DNL)

NI DAQCard-6036E.....	±1 LSB typ, +4 LSB, -2 LSB max
NI 6034E, NI 6035E, NI PCI-6036E.....	±0.5 LSB typ, ±1.0 LSB max

No missing codes

NI DAQCard-6036E.....	15 bits
NI 6034E, NI 6035E, NI PCI-6036E.....	16 bits

Offset error

Pregain error after calibration ±1.0 μV max

Pregain error before calibration

NI DAQCard-6036E.....	±3.0 mV max
NI 6034E, NI 6035E, NI PCI-6036E.....	±28.8 mV max

Postgain error after calibration

NI DAQCard-6036E.....	±0.20 mV max
NI 6034E, NI 6035E, NI PCI-6036E.....	±157 μV max

Postgain error before calibration

NI DAQCard-6036E.....	±50.1 mV max
NI 6034E, NI 6035E, NI PCI-6036E.....	±40 mV max

Gain error (relative to calibration reference)

After calibration (gain = 1)

NI DAQCard-6036E.....	±77 ppm of reading max
NI 6034E, NI 6035E, NI PCI-6036E.....	±74 ppm of reading max

Before calibration

NI DAQCard-6036E.....	±19,800 ppm of reading max
NI 6034E, NI 6035E, NI PCI-6036E.....	±18,900 ppm of reading max

Gain ≠ 1 with gain error

adjusted to 0 at gain = 1 ±200 ppm of reading max

Amplifier Characteristics

Input impedance

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

Input bias current

NI DAQCard-6036E.....	±800 pA
NI 6034E, NI 6035E, NI PCI-6036E.....	±200 pA

Input offset current ±100 pA

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

Range	Bipolar
20 V	85 dB
10 V	85 dB
1 V	96 dB
100 mV	96 dB

Dynamic Characteristics

Bandwidth

Signal	Bandwidth
Small (-3 dB)	413 kHz
Large (1% THD)	490 kHz

Settling time for full-scale step¹

NI DAQCard-6036E

Range 100 mV, 1 V, 20 V.....	±4.5 LSB, 5 μs typ
Range 10 V.....	±2 LSB, 5 μs typ

NI 6034E, NI 6035E, NI PCI-6036E

Range 100 mV.....	±4 LSB, 5 μs typ
Range 1 to 20 V.....	±2 LSB, 5 μs max

System noise (LSB_{rms}, including quantization)

NI DAQCard-6036E

Range 10 V, 20 V.....	1.5
Range 1 V.....	1.7
Range 100 mV.....	7.0

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

NI 6034E, NI 6035E, NI PCI-6036E

Range 10 to 20 V0.8

Range 1 V1.0

Range 100 mV6.2

CrosstalkDC to 100 kHz

Adjacent channels-75 dB

Other channels-90 dB

Stability

Recommended warm-up time

NI DAQCard-6036E30 minutes

NI 6034E, NI 6035E,

NI PCI-6036E15 minutes

Offset temperature coefficient

Pregain±20 µV/°C

Postgain±175 µV/°C

Gain temperature coefficient±20 ppm/°C

Analog Output (NI 6035E/6036E Only)

Output Characteristics

Number of channels 2 voltage

Resolution

NI DAQCard-6036E,

NI PCI-6036E 16 bits, 1 in 65,536

NI 6035E 12 bits, 1 in 4,096

Max update rate

DMA¹ 10 kHz,
system-dependent

Interrupts 1 kHz, system-dependent

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

FIFO buffer size None

Data transfers DMA, interrupts,
programmed I/O

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

Accuracy Information

Device	Nominal Range at Full Scale (V)	Absolute Accuracy					
		% of Reading			Offset (µV)	Temp Drift (%/°C)	Absolute Accuracy at Full Scale (mV)
		24 Hours	90 Days	1 Year			
NI DAQCard-6036E	±10	0.0091	0.0111	0.0133	1.22	0.0005	2.547
NI 6035E	±10	0.18	0.02	0.022	5.93	0.0005	8.127
NI PCI-6036E	±10	0.009	0.011	0.013	1.1	0.0005	2.417

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.

¹ DMA is not available on the NI DAQCard-6036E.

Transfer Characteristics

INL, after calibration

NI DAQCard-6036E, NI PCI-6036E	±2 LSB max
NI 6035E	±0.3 LSB typ, ±0.5 LSB max

DNL ±1.0 LSB max

Monotonicity

NI DAQCard-6036E, NI PCI-6036E	16 bits, guaranteed after calibration
NI 6035E	12 bits, guaranteed after calibration

Offset error

After calibration

NI DAQCard-6036E, NI PCI-6036E	±305 μ V max
NI 6035E	±1.0 mV max

Before calibration

NI DAQCard-6036E	±60 mV max
NI 6035E	±200 mV max
NI PCI-6036E	±44 mV max

Gain error (relative to internal reference)

After calibration

NI DAQCard-6036E, NI PCI-6036E	±30.5 ppm
NI 6035E	±100 ppm

Before calibration

NI DAQCard-6036E, NI PCI-6036E	±0.50%
NI 6035E	±0.75%

Voltage Output

Range ±10 V

Output coupling DC

Output impedance 0.1 Ω max

Current drive ±5 mA max

Protection Short-circuit to ground

Power-on state (steady state)

NI DAQCard-6036E	±60 mV
NI 6035E	±200 mV
NI PCI-6036E	±44 mV

Initial power-up glitch

Magnitude

NI DAQCard-6036E	±1.6 V
NI 6035E	±1.1 V
NI PCI-6036E	±2.2 V

Duration

NI DAQCard-6036E	545 ms
NI 6035E	2.0 ms
NI PCI-6036E	42 μ s

Power reset glitch

Magnitude

NI DAQCard-6036E	±1.6 V
NI 6035E, NI PCI-6036E	±2.2 V

Duration

NI DAQCard-6036E	545 ms
NI 6035E	4.2 μ s
NI PCI-6036E	42 μ s

Dynamic Characteristics

Settling time for full-scale step

NI DAQCard-6036E	5 μ s to ±4.5 LSB accuracy
NI 6035E	10 μ s to ±0.5 LSB accuracy
NI PCI-6036E	5 μ s to ±1 LSB accuracy

Slew rate

NI DAQCard-6036E	5 V/ μ s
NI 6035E	10 V/ μ s
NI PCI-6036E	15 V/ μ s

Noise

NI DAQCard-6036E	160 μ V _{rms} , DC to 400 kHz
NI 6035E	200 μ V _{rms} , DC to 1 MHz
NI PCI-6036E	110 μ V _{rms} , DC to 400 kHz

Mid-scale transition glitch (NI 6035E and NI PCI-6036E only)

Magnitude

NI 6035E	±12 mV
NI PCI-6036E	±10 mV

Duration

NI 6035E	2.0 μ s
NI PCI-6036E	1.0 μ s

Stability

Offset temperature coefficient

NI DAQCard-6036E	$\pm 150 \mu\text{V}/^\circ\text{C}$
NI 6035E	$\pm 50 \mu\text{V}/^\circ\text{C}$
NI PCI-6036E	$\pm 35 \mu\text{V}/^\circ\text{C}$

Gain temperature coefficient

NI DAQCard-6036E	$\pm 8 \text{ ppm}/^\circ\text{C}$
NI 6035E	$\pm 25 \text{ ppm}/^\circ\text{C}$
NI PCI-6036E	$\pm 6.5 \text{ ppm}/^\circ\text{C}$

Digital I/O

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

Compatibility.....5 V TTL/CMOS

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 ($V_{in} = 0 \text{ V}$)	—	$-320 \mu\text{A}$
Input high current ($V_{in} = 5 \text{ V}$)	—	$10 \mu\text{A}$
Output low voltage ($I_{OL} = 24 \text{ mA}$)	—	0.4 V
Output high voltage ($I_{OH} = -13 \text{ mA}$)	4.35 V	—

Power-on stateInput (high-impedance),
50 k Ω pull-up to +5 VDC

Data transfers.....Programmed I/O

Transfer rate (1 word = 8 bits)¹50 kwords/s, typ

Constant sustainable rate¹.....1 to 10 kwords/s, typ

Timing I/O

Number of channels

Up/down counter/timers	2
Frequency scaler	1

Resolution

Up/down counter/timers	24 bits
Frequency scaler	4 bits

Compatibility.....5 V TTL/CMOS

Digital logic levels

Level	Min	Max
Input low voltage	0.0 V	0.8 V
Input high voltage	2.0 V	5.0 V
Output low voltage ($I_{out} = 5 \text{ mA}$)	—	4.35 V
Output high voltage ($I_{out} = -3.5 \text{ mA}$)	0.4 V	—

Base clocks available

Up/down counter/timers	20 MHz, 100 kHz
Frequency scaler	10 MHz, 100 kHz

Base clock accuracy..... $\pm 0.01\%$

Max external source frequency

up/down counter/timers 20 MHz

External source selections..... PFI <0..9>, RTSI <0..6>
(except DAQCard),
analog trigger,
software-selectable

External gate selections PFI <0..9>, RTSI <0..6>
(except DAQCard),
analog trigger,
software-selectable

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

Min gate pulse duration 10 ns in edge-detect mode

Data transfers

PCI up/down counter/timer DMA² (scatter-gather),
interrupts,
programmed I/O

DAQCard up/down
counter/timer Interrupts,
programmed I/O

Frequency scaler Programmed I/O

¹ Not guaranteed on the NI DAQCard-6036E.

² DMA is not available on the NI DAQCard-6036E.

Triggers

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> (except DAQCard)
Compatibility	5 V TTL
Response	Rising or falling edge
Pulse width	10 ns min

RTSI (PCI Only)

Trigger lines 7

Calibration

Recommended warm-up time

PCI.....	15 minutes
DAQCard.....	30 minutes

Interval 1 year

External calibration reference Between 6 and 10 V

Onboard calibration reference

Level.....	5.000 V (± 3.5 mV) (over full operating temperature, actual value stored in EEPROM)
Temperature coefficient	± 5.0 ppm/ $^{\circ}$ C max
Long-term stability	± 15.0 ppm/ $\sqrt{1,000}$ h

Power Requirement

PCI +5 VDC ($\pm 5\%$) at 0.9 A

DAQCard +5 VDC ($\pm 5\%$) at 0.3 A



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

Power available at I/O connector

PCI.....	+4.65 to +5.25 VDC at 1 A
DAQCard.....	+4.65 to +5.25 VDC at 0.75 A

Physical

Dimensions

PCI

(not including connectors) 17.5 cm \times 10.6 cm
(6.9 in. \times 4.2 in.)

DAQCard Type II PC Card

Weight

NI DAQCard-6036E	32 g (1.1 oz)
NI PCI-6034E	152 g (5.3 oz)
NI PCI-6035E	165 g (5.8 oz)
NI PCI-6036E	114 g (4.0 oz)

I/O connector

PCI68-pin male SCSI-II type
DAQCard68-position female VHDCI

Maximum Working Voltage

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

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

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

Environmental

Operating temperature 0 to 55 $^{\circ}$ C

Storage temperature -20 to 70 $^{\circ}$ C

Relative humidity

NI DAQCard-6036E	10 to 90%, noncondensing
NI 6035E, NI PCI-6036E.....	10 to 90%, noncondensing

Safety

NI PCI-6034E/6035E/6036E

The device meets 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 DAQCard-6036E

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

- IEC 60950, EN 60950
- UL 1950, UL 60950
- CAN/CSA-C22.2 No. 60950



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

ImmunityEN 61326:1997
A2:2001, Table 1

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



Note For EMC compliance, you must 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.

AI 8	34	68	AI 0
AI 1	33	67	AI GND
AI GND	32	66	AI 9
AI 10	31	65	AI 2
AI 3	30	64	AI GND
AI GND	29	63	AI 11
AI 4	28	62	AI SENSE
AI GND	27	61	AI 12
AI 13	26	60	AI 5
AI 6	25	59	AI GND
AI GND	24	58	AI 14
AI 15	23	57	AI 7
NC	22	56	AI GND
NC	21	55	AO GND
NC	20	54	AO GND
P0.4	19	53	D GND
D GND	18	52	P0.0
P0.1	17	51	P0.5
P0.6	16	50	D GND
D GND	15	49	P0.2
+5 V	14	48	P0.7
D GND	13	47	P0.3
D GND	12	46	AI HOLD COMP
PFI 0/AI START TRIG	11	45	EXT STROBE
PFI 1/AI REF TRIG	10	44	D GND
D GND	9	43	PFI 2/AI CONV CLK
+5 V	8	42	PFI 3/CTR 1 SRC
D GND	7	41	PFI 4/CTR 1 GATE
PFI 5/AO SAMP CLK	6	40	CTR 1 OUT
PFI 6/AO START TRIG	5	39	D GND
D GND	4	38	PFI 7/AI SAMP CLK
PFI 9/CTR 0 GATE	3	37	PFI 8/CTR 0 SRC
CTR 0 OUT	2	36	D GND
FREQ OUT	1	35	D GND

NC = No Connect

Figure 1. NI 6034E Pinout

AI 8	34	68	AI 0
AI 1	33	67	AI GND
AI GND	32	66	AI 9
AI 10	31	65	AI 2
AI 3	30	64	AI GND
AI GND	29	63	AI 11
AI 4	28	62	AI SENSE
AI GND	27	61	AI 12
AI 13	26	60	AI 5
AI 6	25	59	AI GND
AI GND	24	58	AI 14
AI 15	23	57	AI 7
AO 0	22	56	AI GND
AO 1	21	55	AO GND
NC	20	54	AO GND
P0.4	19	53	D GND
D GND	18	52	P0.0
P0.1	17	51	P0.5
P0.6	16	50	D GND
D GND	15	49	P0.2
+5 V	14	48	P0.7
D GND	13	47	P0.3
D GND	12	46	AI HOLD COMP
PFI 0/AI START TRIG	11	45	EXT STROBE
PFI 1/AI REF TRIG	10	44	D GND
D GND	9	43	PFI 2/AI CONV CLK
+5 V	8	42	PFI 3/CTR 1 SRC
D GND	7	41	PFI 4/CTR 1 GATE
PFI 5/AO SAMP CLK	6	40	CTR 1 OUT
PFI 6/AO START TRIG	5	39	D GND
D GND	4	38	PFI 7/AI SAMP CLK
PFI 9/CTR 0 GATE	3	37	PFI 8/CTR 0 SRC
CTR 0 OUT	2	36	D GND
FREQ OUT	1	35	D GND

NC = No Connect

Figure 2. NI 6035E/6036E Pinout

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