

NI 6533/6534 Specifications

This document lists features and specifications for the NI 6533/6534 family of devices and the NI PCI/PXI-7030/6533. The NI 6533/6534 family includes the following devices:

- NI PCI-6534
- NI PXI-6534
- NI PCI-6533 (PCI-DIO-32HS)
- NI PXI-6533
- NI DAQCard-6533
- NI AT-DIO-32HS



Note All NI 6533/6534 devices can be programmed with NI-DAQmx or NI-DAQ Traditional (Legacy), except for the NI DAQCard-6533 and NI AT-DIO-32HS, which are only supported with NI-DAQ Traditional (Legacy).

Specifications are typical at 25 °C unless otherwise noted. Specifications are subject to change without notice. For the most recent version of the specifications, visit ni.com/manuals.

Digital I/O

Number of channels 32 input/output;
4 dedicated output and control;
4 dedicated input and status

Compatibility TTL/CMOS (standard or
open collector)

Hysteresis 500 mV

Digital logic levels

Level	Minimum	Maximum
Input low voltage	0 V	0.8 V
Input high voltage	2 V	5 V

Level	Minimum	Maximum
Input low current for data lines ($V_{in} = 0.4 \text{ V}$) DATA PULL [†] high DATA PULL low	— —	$-70 \mu\text{A}$ $-10 \mu\text{A}$
Input high current for data lines ($V_{in} = 2.4 \text{ V}$) DATA PULL high DATA PULL low	— —	$10 \mu\text{A}$ $40 \mu\text{A}$
Input low current for control lines ($V_{in} = 0.4 \text{ V}$) CTRL PULL [‡] high CTRL PULL low	— —	-2.5 mA $-200 \mu\text{A}$
Input high current for control lines ($V_{in} = 2.4 \text{ V}$) CTRL PULL high CTRL PULL low	— —	$200 \mu\text{A}$ 1.4 mA
Input low current for CTRL PULL/DATA PULL ($V_{in} = 0.4 \text{ V}$)	—	$4 \mu\text{A}$
Input high current for CTRL PULL/DATA PULL ($V_{in} = 2.4 \text{ V}$)	—	$140 \mu\text{A}$
Output low voltage ($I_{OL} = 24 \text{ mA}$)	—	0.4 V
Output high voltage ^{††} ($I_{OH} = 24 \text{ mA}$)	2.4 V	—
[†] DATA PULL is represented as the DPULL signal in Traditional NI-DAQ (Legacy). [‡] CTRL PULL is represented as the CPULL signal in Traditional NI-DAQ (Legacy). ^{††} When configured as active drive output terminals. Drivers configured for open-collector drive type are in the high-impedance state when at logic high level.		

Absolute maximum

input voltage range -0.3 to 5 V

Power-on state for output channelsHigh-impedance, pulled up
or down (selectable)

Pull-up/down resistors

CTRL PULL (for control lines)..... $2.2 \text{ k}\Omega$

DATA PULL (for data lines) $100 \text{ k}\Omega$

Data transfers (all devices

except NI DAQCard-6533).....Interrupt, DMA

Memory

NI AT-DIO-32HS	16 S
NI DAQCard-6533 for PCMCIA.....	16 S
NI PCI/PXI-6534	64 MB, two 32 MB modules on each NI 6534
NI PCI/PXI-7030/6533	16 S
NI PCI-DIO-32HS	16 S
NI PXI-6533.....	16 S

Sample Timing Types

Sample Clock Timing¹

Direction.....	Input or output
Maximum sample rate (internally timed, for small transfers ²).....	20 MHz
Minimum sample rate (internal clock rate)	1 S/10 minutes

Change Detection

Change-detection resolution	150 ns
-----------------------------------	--------

Triggers

Start and Reference³ Triggers

Compatibility	TTL/CMOS
Trigger types	Rising or falling edge, or digital pattern
Minimum pulse width for edge triggers	10 ns

¹ Sample clock timing is described as Pattern I/O in NI-DAQ Traditional (Legacy).

² Small transfer size is the size of the FIFO.

³ Reference triggers are called Stop triggers in NI-DAQ Traditional (Legacy).

Pattern trigger detection capabilities	Detect pattern match or mismatch on user-selected data lines
Pattern trigger resolution	60 ns or one Sample clock ¹ period, depending on pattern I/O mode

RTSI Triggers (PCI, PXI, AT)

Trigger lines.....	7
--------------------	---

Bus Interfaces

NI PCI-DIO-32HS/PXI-6533/ PCI-6534/PXI-6534.....	PCI master and target with onboard linking (scatter-gather) DMA
AT-DIO-32HS type	AT slave with dual DMA
NI DAQCard-6533 for PCMCIA type ...	PCMCIA slave

Power

Power Requirements

+5 VDC ($\pm 5\%$) (with light output load)	
NI PCI-DIO-32HS, NI PXI-6533....	1.3 A
NI PCI-6534 and NI PXI-6534.....	2.0 A
NI DAQCard-6533 for PCMCIA	500 mA

Power Available at I/O Connector

NI PCI-DIO-32HS, NI PXI-6533, NI AT-DIO-32HS, NI PCI-6534, and NI PXI-6534.....	+4.65 to +5.25 VDC at 1 A
NI DAQCard-6533 for PCMCIA	+4.65 to +5.25 VDC at 250 mA

¹ Sample clock is represented by the REQ signal in NI-DAQ Traditional (Legacy).

Physical

Dimensions, not including connectors

NI DAQCard-6533 for PCMCIA ...	8.6 by 5.3 cm (3.4 by 2.1 in.)
NI AT-DIO-32HS/ PCI-6533/6534	17.5 by 10.7 cm (6.9 by 4.2 in.)
NI PXI-6533/6534	16.3 by 9.9 cm (6.4 by 3.9 in.)

I/O connector

NI PCI-DIO-32HS, NI PXI-6533, NI AT-DIO-32HS, NI PCI-6534, and NI PXI-6534	68-pin male SCSI-II type
NI DAQCard-6533 for PCMCIA ...	68-pin female PCMCIA connector

Environment

Operating temperature.....	0 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	5 to 90% noncondensing
Functional shock	MIL-T-28800 E Class 3 (per Section 4.5.5.4.1) Half-sine shock pulse, 11 ms duration, 30 g peak, 30 shocks per face
Operational random vibration (PXI only)	5 to 500 Hz, 0.31 g _{rms} , 3 axes
Nonoperational random vibration (PXI only)	5 to 500 Hz, 2.5 g _{rms} , 3 axes



Note Random vibration profiles were developed in accordance with MIL-T-28800E and MIL-STD-810E Method 514. Test levels exceed those recommended in MIL-STD-810E for Category 1 (Basic Transportation, Figures 514.4-1 through 514.4-3).

National Instruments, NI, ni.com, and LabVIEW are trademarks of National Instruments Corporation. Refer to the *Terms of Use* section on ni.com/legal for more information about National Instruments trademarks. Other product and company names mentioned herein are trademarks or trade names of their respective companies. For patents covering National Instruments products, refer to the appropriate location: **Help»Patents** in your software, the `patents.txt` file on your CD, or ni.com/patents.