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

NATIONAL INSTRUMENTS

Level	Minimum	Maximum
Input low current for data lines (V_{in} = 0.4 V) DATA PULL[†] high DATA PULL low	— —	–70 µA –10 µA
Input high current for data lines (V_{in} = 2.4 V) DATA PULL high DATA PULL low	— —	10 µA 40 µA
Input low current for control lines (V_{in} = 0.4 V) CTRL PULL[‡] high CTRL PULL low	— —	–2.5 mA –200 µA
Input high current for control lines (V_{in} = 2.4 V) CTRL PULL high CTRL PULL low	— —	200 µA 1.4 mA
Input low current for CTRL PULL/DATA PULL (V_{in} = 0.4 V)	—	4 µA
Input high current for CTRL PULL/DATA PULL (V_{in} = 2.4 V)	—	140 µA
Output low voltage (I_{OL} = 24 mA)	—	0.4 V
Output high voltage[††] (I_{OH} = 24 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 channels ....High-impedance, pulled up
or down (selectable)

Pull-up/down resistors
CTRL PULL (for control lines).......2.2 kΩ

DATA PULL (for data lines) ....100 kΩ

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 Timing[1]

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 Reference[3] Triggers

Compatibility .... TTL/CMOS

Trigger types .... Rising or falling edge, or digital pattern

Minimum pulse width for edge triggers .... 10 ns

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[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 (±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

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[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).