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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 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

[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

[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).

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