

E Series Multifunction DAQ – 333 kS/s, 16-Bit, 16 Analog Inputs

NI 6052E

NI 6052E

PCI-6052E
PXI-6052E

Analog Inputs

16 single-ended, 8 differential channels
333 kS/s sampling rate
333 kS/s stream-to-disk rate
16-bit resolution

Analog Output

2 channels, 16-bit resolution

Digital I/O

8 (5 V/TTL) lines

Counter/Timers

2 up/down, 24-bit resolution

Triggering

Analog and digital

Driver Software

NI-DAQ
Windows 2000/NT/Me/9x
Mac OS

Real-Time

See page 184.

Application Software

LabVIEW
Measurement Studio
ComponentWorks
VirtualBench
Measure
Lookout

Calibration Certificate Included

See page 256.



Ordering Information

NI 6052E

PCI-6052E777745-01

PXI-6052E777962-01

Includes NI-DAQ for Windows 2000/NT/Me/9x and Mac OS.

Extended warranty and

value added servicespage 880

Recommended Configurations

DAQ Device	Accessory	Cable
PCI-6052E	SCB-68 (776844-01)	SH6868-EP (184749-01)
PXI-6052E	TBX-68 (777141-01)	SH6868-EP (184749-01)

See page 334 for accessory and cable information.

Overview

The NI 6052E DAQ devices use E Series technology to deliver high-performance and reliable data acquisition capabilities to meet a wide range of application requirements. You get up to 333 kS/s, 16-bit performance on 16 single-ended analog inputs. Depending on your type of hard drive, these devices can stream to disk at rates up to 333 kS/s.

These NI 6052E DAQ devices feature analog and digital triggering capability, as well as two 24-bit, 20 MHz counter/timers, and eight digital I/O lines. The NI 6052E DAQ devices also feature two 16-bit analog outputs.

See the E Series Multifunction DAQ Overview on page 306 for a more detailed hardware overview.

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pci6052e
pxi6052e

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Device	Bus	Analog Inputs	Resolution	Sampling Rate	Input Range	Analog Outputs	Resolution	Output Rate	Output Range	Digital I/O	Counter/Timers	Triggers
NI 6052E	PCI, PXI/CPCI	16 SE/8 DI	16 bits	333 kS/s	±0.05 to ±10 V	2	16 bits	333 kS/s	±10 V	8	2, 24-bit	Analog and Digital

Table 1. NI 6052E Channel, Speed, and Resolution Specifications (see page 349 for detailed specifications)

Measurements

E Series Multifunction DAQ – 333 kS/s, 16-Bit, 16 Analog Inputs

NI 6052E

Nominal Range (V)		Absolute Accuracy						Relative Accuracy		
		% of Reading		Offset (μV)	Noise + Quantization (μV)		Temp Drift ($\%/^{\circ}\text{C}$)	Absolute Accuracy at Full Scale (mV)	Resolution (μV)	
Positive FS	Negative FS	24 Hrs	1 Year		Single Pt.	Averaged			Single Pt.	Averaged
10	-10	0.0354	0.0371	947	981	87.0	0.0006	4.747	1145	115
5	-5	0.0054	0.0071	476	491	43.5	0.0001	0.876	573	57.3
2.5	-2.5	0.0354	0.0371	241	245	21.7	0.0006	1.190	286	28.6
1	-1	0.0354	0.0371	99.2	98.1	8.7	0.0006	0.479	115	11.5
0.5	-0.5	0.0354	0.0371	52.1	56.2	5.0	0.0006	0.243	66.3	6.6
0.25	-0.25	0.0404	0.0421	28.6	32.8	3.0	0.0006	0.137	39.2	3.9
0.1	-0.1	0.0454	0.0471	14.4	22.4	2.1	0.0006	0.064	27.7	2.8
0.05	-0.05	0.0454	0.0471	9.7	19.9	1.9	0.0006	0.035	25.3	2.5
10	0	0.0054	0.0071	476	491	43.5	0.0001	1.232	573	57.3
5	0	0.0354	0.0371	241	245	21.7	0.0006	2.119	286	28.6
2	0	0.0354	0.0371	99.2	98.1	8.7	0.0006	0.850	115	11.5
1	0	0.0354	0.0371	52.1	56.2	5.0	0.0006	0.428	66.3	6.6
0.5	0	0.0404	0.0421	28.6	39.8	3.0	0.0006	0.242	48.2	3.9
0.2	0	0.0454	0.0471	14.4	22.4	2.1	0.0006	0.111	27.7	2.8
0.1	0	0.0454	0.0471	9.7	19.9	1.9	0.0006	0.059	25.3	2.5

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. One-year calibration interval recommended. 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 pt averaging of data. See overview on page 312 for an example calculation of this type.

Table 2. NI 6052E Analog Input Accuracy Specifications

Nominal Range (V)		Absolute Accuracy				Temp Drift ($\%/^{\circ}\text{C}$)	Absolute Accuracy at Full Scale (mV)
		% of Reading			Offset (μV)		
Positive FS	Negative FS	24 Hrs	90 Days	1 Year			
10	-10	0.0044	0.0052	0.0061	798	0.0001	1.405
10	0	0.0044	0.0052	0.0061	569	0.0001	1.176

Note: Temp Drift applies only if ambient is greater than $\pm 10^{\circ}\text{C}$ of previous external calibration. See page 312 for example calculations.



See page 349 for more detailed specifications.

Table 3. NI 6052E Analog Output Accuracy Specifications

Measurements

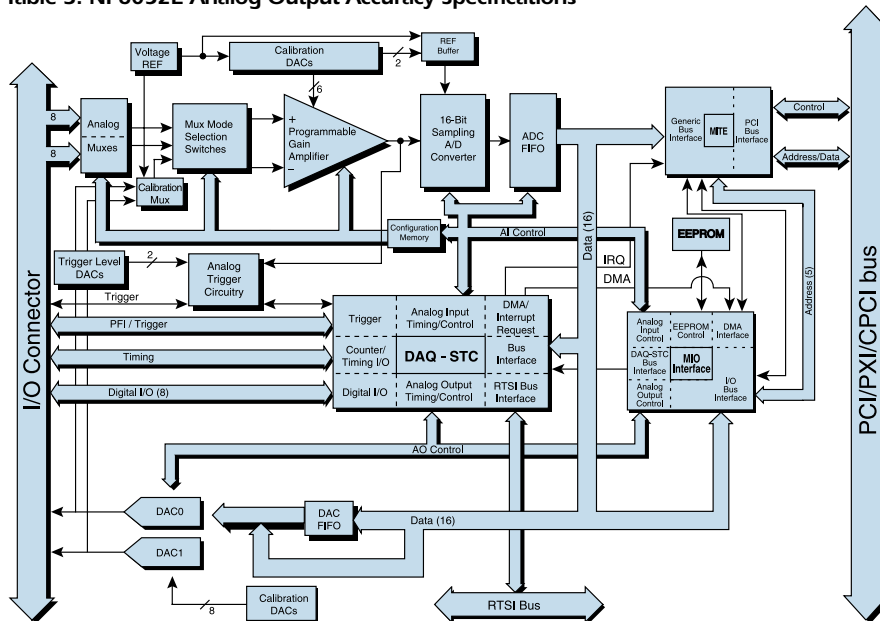


Figure 1. NI 6052E Hardware Block Diagram



See page 310 in the E Series Multifunction DAQ Overview for I/O connector diagrams.