

NI PXI/PCI-5124 Specifications

12-Bit 200 MS/s Digitizer

Unless otherwise noted, the following conditions were used for each specification:

- All filter settings
- All impedance selections
- Sample clock set to 200 MS/s using onboard clock

Typical values are representative of an average unit operating at room temperature. Specifications are subject to change without notice. For the most recent NI 5124 specifications, visit ni.com/manuals.

To access the NI 5124 documentation, including the *NI High-Speed Digitizers Getting Started Guide*, which contains functional descriptions of the NI 5124 signals, navigate to **Start»Programs»National Instruments»NI-SCOPE»Documentation**.



Hot Surface If the NI 5124 has been in use, it may exceed safe handling temperatures and cause burns. Allow the NI 5124 to cool before removing it from the PXI chassis or PC.

Contents

Vertical.....	2
Analog Input (Channel 0 and Channel 1)	2
Horizontal.....	14
Sample Clock	14
Phase-Locked Loop (PLL) Reference Clock.....	16
CLK IN (Sample Clock and Reference Clock Input, Front Panel Connector)	17
CLK OUT (Sample Clock and Reference Clock Output, Front Panel Connector)	17
Trigger.....	17
Reference (Stop) Trigger	17
TRIG (External Trigger, Front Panel Connector).....	19
PFI 0 and PFI 1 (Programmable Function Interface, AUX Front Panel Connector).....	20
Waveform Specifications	21

Calibration	22
Power	22
Software	23
Environment	24
NI PXI-5124	24
NI PCI-5124	25
Safety, Electromagnetic Compatibility, and CE Compliance	26
Physical	27
Where to Go for Support	27

Vertical

Analog Input (Channel 0 and Channel 1)

Specification	Value		Comments
Number of Channels	Two (simultaneously sampled)		—
Connector	BNC		—
Impedance and Coupling			
Input Impedance	50 Ω \pm 2.0%	1 M Ω \pm 0.75% in parallel with a typical capacitance of 25 pF	Software selectable.
Input Coupling	AC, DC, GND		AC coupling available on 1 M Ω only.

Specification	Value				Comments
Voltage Levels					
Full Scale (FS) Input Range and Programmable Vertical Offset	50 Ω		1 M Ω		—
	Range (V _{pk-pk})	Vertical Offset Range (V)	Range (V _{pk-pk})	Vertical Offset Range (V)	
	0.2	± 0.1	0.2	± 0.1	
	0.4	± 0.2	0.4	± 0.2	
	1	± 0.5	1	± 0.5	
	2	± 1	2	± 1	
	4	± 2	4	± 2	
	10	0	10	± 5	
		20	0		
Maximum Input Overload	50 Ω		1 M Ω		—
	7 V _{rms} with Peaks \leq 10 V		Peaks \leq 42 V		
Accuracy					
Resolution	12 bits				—
DC Accuracy (Programmable Vertical Offset = 0 V)	Range (V _{pk-pk})	NI PXI-5124		NI PCI-5124	Within ± 5 °C of self-calibration temperature.
	0.2 and 0.4	$\pm(0.65\%$ of Input + 1.3 mV)		$\pm(0.65\%$ of Input + 1.8 mV)	
	1 and 2	$\pm(0.65\%$ of Input + 1.5 mV)		$\pm(0.65\%$ of Input + 2.1 mV)	
	4, 10, and 20 (1 M Ω only)	$\pm(0.65\%$ of Input + 10.0 mV)		$\pm(0.65\%$ of Input + 10.0 mV)	
Programmable Vertical Offset Accuracy	$\pm 0.4\%$ of offset setting				Within ± 5 °C of self-calibration temperature.

Specification	Value			Comments
DC Drift	Range (V_{pk-pk})	50 Ω and 1 M Ω		—
	0.2, 0.4, 1, and 2	$\pm(0.057\%$ of Input + 0.006% of FS + 100 μ V) per $^{\circ}$ C		
	4, 10, and 20 (1 M Ω only)	$\pm(0.057\%$ of Input + 0.006% of FS + 900 μ V) per $^{\circ}$ C		
AC Amplitude Accuracy	50 Ω	1 M Ω		Within ± 5 $^{\circ}$ C of self-calibration temperature.
	± 0.06 dB ($\pm 0.7\%$) at 50 kHz	± 0.09 dB ($\pm 1.0\%$) at 50 kHz		
Crosstalk, Typical	≤ -85 dB at 10 MHz			CH 0 to/from CH 1, External Trigger to CH 0 or CH 1.
Sparkle Code Rate, Typical	<300 ppt* with onboard clock or 200 MHz external clock <3 ppt* with 150 MHz external clock 0 with 100 MHz external clock			Results based on 2×10^{12} samples. * ppt = parts per trillion (10^{12})
Bandwidth and Transient Response				
Bandwidth (-3 dB)	Range (V_{pk-pk})	50 Ω	1 M Ω	Filters off. * 135 MHz above 40 $^{\circ}$ C.
	All ranges except 0.2	150 MHz	145 MHz up to 40 $^{\circ}$ C*	
	0.2	85 MHz	75 MHz	
Rise/Fall Time, Typical	Range (V_{pk-pk})	50 Ω and 1 M Ω		Filters off.
	All ranges except 0.2	2.4 ns		
	0.2	3.3 ns		
Bandwidth Limit Filters	Noise Filter	Antialias Filter		Only one filter can be enabled at any given time. The antialias filter is enabled by default.
	20 MHz, typical 2-pole Bessel filter	60 MHz, typical 4-pole elliptical filter		

Specification	Value			Comments
AC Coupling Cutoff (-3 dB)	12 Hz			AC coupling available on 1 M Ω only.
Passband Flatness	Filter Settings	Range (V _{pk-pk})	50 Ω and 1 M Ω	Referenced to 50 kHz.
	Filters Off	All ranges except 0.2	± 0.5 dB DC to 20 MHz ± 1.0 dB 20 MHz to 50 MHz ± 1.7 dB 50 MHz to 100 MHz	
		0.2	± 0.6 dB DC to 20 MHz ± 1.5 dB 20 MHz to 40 MHz	
	Antialias Filter On	All ranges	-1.0 dB to +2.0 dB DC to 55 MHz	

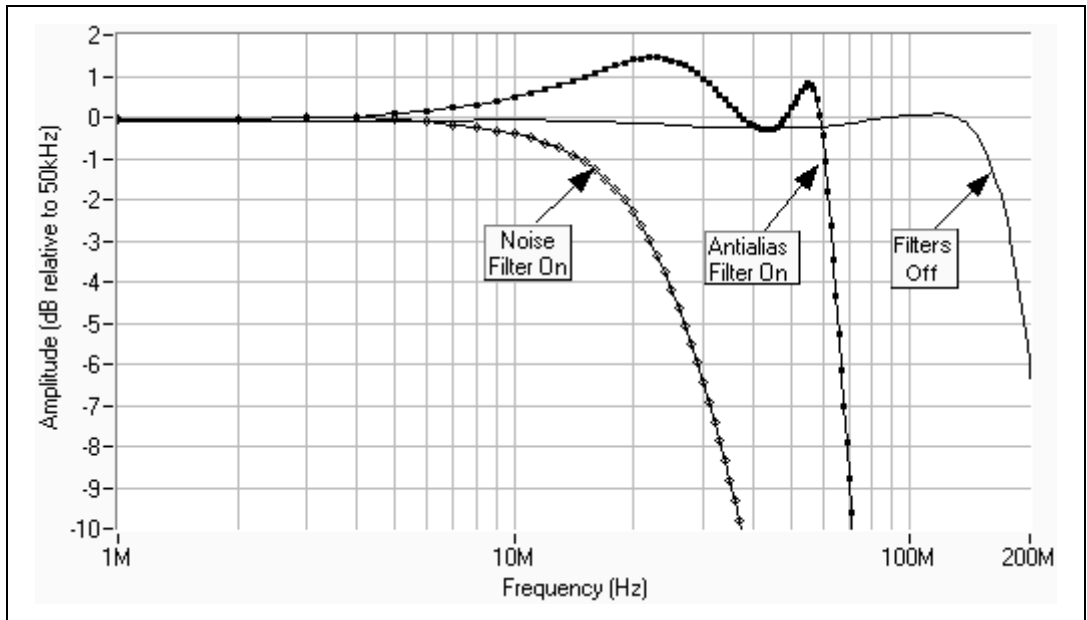


Figure 1. NI 5124 Frequency Response (Typical)

Specification	Value			Comments
Spectral Characteristics				
Spurious Free Dynamic Range with Harmonics (SFDR), Typical	Range (V_{pk-pk})	50 Ω	1 M Ω	Filters off or antialias filter on. 10 MHz, -1 dBFS input signal. Includes the 2nd through the 5th harmonics. Measured from DC to 100 MHz on NI PXI-5124. Measured from 5 kHz to 100 MHz on NI PCI-5124.
	0.2	-75 dBc	-70 dBc	
	0.4	-75 dBc	-70 dBc	
	1	-72 dBc	-70 dBc	
	2	-72 dBc	-70 dBc	
	4	-65 dBc	-67 dBc	
	10	-65 dBc	-60 dBc	
	20 (1 M Ω only)	—	-60 dBc	
Total Harmonic Distortion (THD), Typical	Range (V_{pk-pk})	50 Ω	1 M Ω	Filters off or antialias filter on. 10 MHz, -1 dBFS input signal. Includes the 2 nd through the 5 th harmonics.
	0.2	-74 dBc	-68 dBc	
	0.4	-74 dBc	-68 dBc	
	1	-72 dBc	-68 dBc	
	2	-72 dBc	-67 dBc	
	4	-63 dBc	-66 dBc	
	10	-63 dBc	-58 dBc	
	20 (1 M Ω only)	—	-58 dBc	

Specification	Value				Comments	
Intermodulation Distortion, Typical	0.2 V _{pk-pk} to 2.0 V _{pk-pk} Ranges on 50 Ω Input				Filters off or antialias filter on. Two tones at 10.2 MHz and 11.2 MHz. Each tone is -7 dBFS.	
	-75 dBc					
Signal-to-Noise Ratio (SNR), Typical	Range (V _{pk-pk})	50 Ω		1 MΩ		Excludes harmonics. 10 MHz, -1 dBFS input signal. Measured from DC to 100 MHz.
		Filters Off	Antialias Filter On	Filters Off	Antialias Filter On	
	0.2	57 dB	56 dB	53 dB	55 dB	
	0.4	58 dB	57 dB	55 dB	57 dB	
	1	58 dB	58 dB	57 dB	57 dB	
	2	58 dB	58 dB	57 dB	57 dB	
	4	—	—	56 dB	58 dB	
Signal to Noise and Distortion (SINAD), Typical	Range (V _{pk-pk})	50 Ω		1 MΩ		Includes harmonics. 10 MHz, -1 dBFS input signal. Measured from DC to 100 MHz.
		Filters Off	Antialias Filter On	Filters Off	Antialias Filter On	
	0.2	57 dB	56 dB	53 dB	55 dB	
	0.4	58 dB	57 dB	55 dB	57 dB	
	1	58 dB	58 dB	57 dB	57 dB	
	2	58 dB	58 dB	57 dB	57 dB	
	4	—	—	56 dB	57 dB	

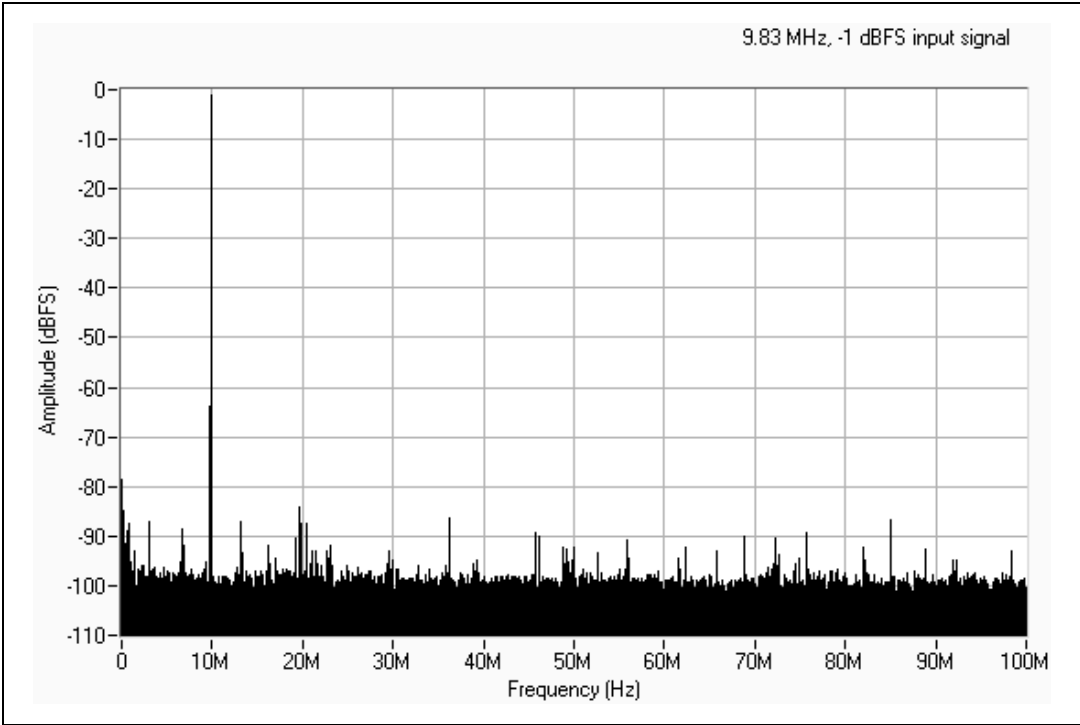


Figure 2. NI 5124 Dynamic Performance, 50 Ω , 1 V_{pk-pk} Range, 262,144 Point FFT (Typical)

Specification	Value			Comments
RMS Noise	Range (V_{pk-pk})	50 Ω	1 M Ω	Noise filter on. 50 Ω terminator connected to input.
	0.2	NI PXI-5124: 94 μV_{rms} (0.047% FS) NI PCI-5124: 106 μV_{rms} (0.053% FS)	NI PXI-5124: 104 μV_{rms} (0.052% FS) NI PCI-5124: 116 μV_{rms} (0.058% FS)	
	0.4	188 μV_{rms} (0.047% FS)	192 μV_{rms} (0.048% FS)	
	1	470 μV_{rms} (0.047% FS)	480 μV_{rms} (0.048% FS)	
	2	940 μV_{rms} (0.047% FS)	960 μV_{rms} (0.048% FS)	
	4	1.88 mV _{rms} (0.047% FS)	1.92 mV _{rms} (0.048% FS)	
	10	4.7 mV _{rms} (0.047% FS)	4.8 mV _{rms} (0.048% FS)	
	20 (1 M Ω only)	—	9.4 mV _{rms} (0.047% FS)	

Specification	Value			Comments
RMS Noise	Range (V_{pk-pk})	50 Ω	1 M Ω	Antialias filter on.
	0.2	NI PXI-5124: 112 μV_{rms} (0.056% FS) NI PCI-5124: 126 μV_{rms} (0.063% FS)	NI PXI-5124: 130 μV_{rms} (0.065% FS) NI PCI-5124: 146 μV_{rms} (0.073% FS)	50 Ω terminator connected to input.
	0.4	200 μV_{rms} (0.05% FS)	216 μV_{rms} (0.054% FS)	
	1	500 μV_{rms} (0.05% FS)	510 μV_{rms} (0.051% FS)	
	2	1.0 mV _{rms} (0.05% FS)	1.02 mV _{rms} (0.051% FS)	
	4	2.04 mV _{rms} (0.051% FS)	2.16 mV _{rms} (0.054% FS)	
	10	5.1 mV _{rms} (0.051% FS)	5.2 mV _{rms} (0.052% FS)	
	20 (1 M Ω only)	N/A	10.2 mV _{rms} (0.051% FS)	

Specification	Value			Comments
RMS Noise	Range (V_{pk-pk})	50 Ω	1 M Ω	Filters off. 50 Ω terminator connected to input.
	0.2	NI PXI-5124: 114 μV_{rms} (0.057% FS) NI PCI-5124: 128 μV_{rms} (0.064% FS)	NI PXI-5124: 164 μV_{rms} (0.082% FS) NI PCI-5124: 184 μV_{rms} (0.092% FS)	
	0.4	204 μV_{rms} (0.051% FS)	264 μV_{rms} (0.066% FS)	
	1	510 μV_{rms} (0.051% FS)	550 μV_{rms} (0.055% FS)	
	2	1.02 mV _{rms} (0.051% FS)	1.08 mV _{rms} (0.054% FS)	
	4	2.08 mV _{rms} (0.052% FS)	2.6 mV _{rms} (0.065% FS)	
	10	5.2 mV _{rms} (0.052% FS)	5.5 mV _{rms} (0.055% FS)	
	20	—	10.6 mV _{rms} (0.053% FS)	

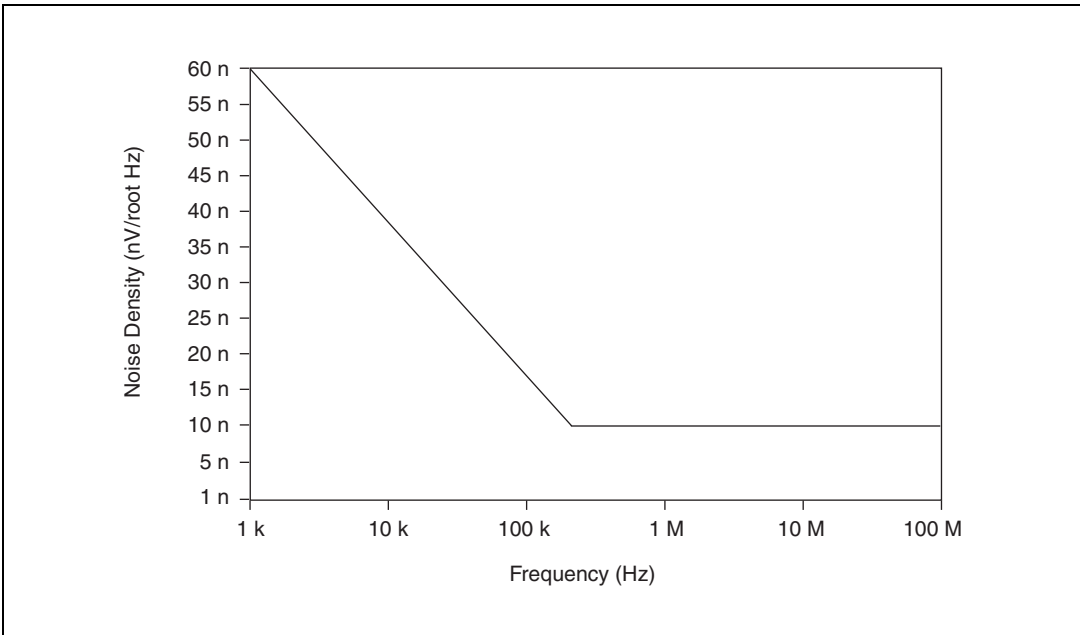


Figure 3. Representation of NI 5124 Spectral Noise Density on 0.2 V Range, Noise Filter Enabled, 1 M Ω Input Impedance

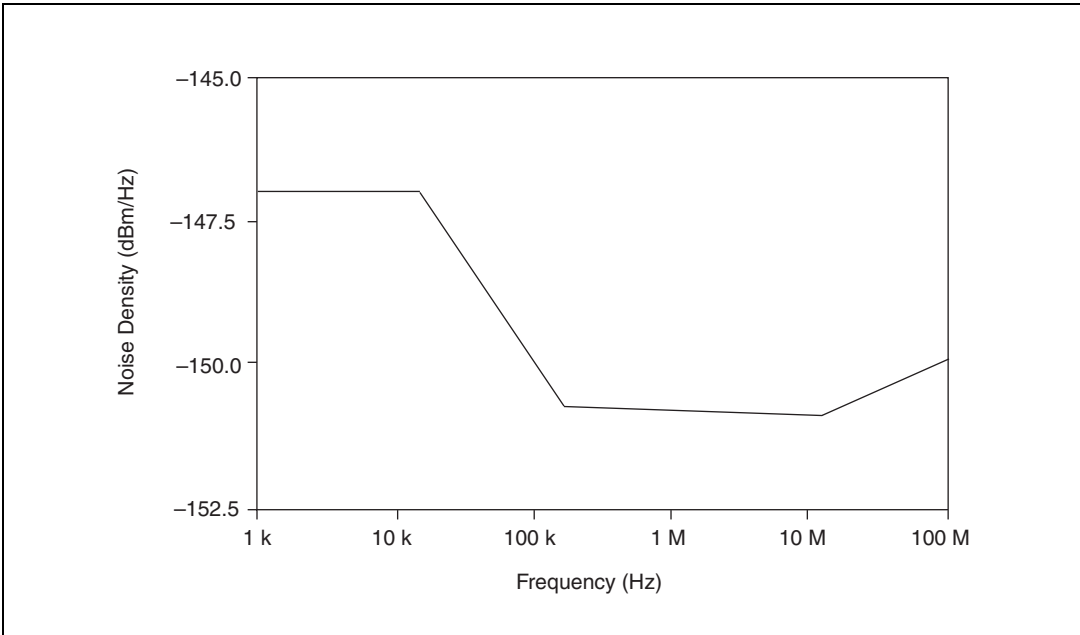


Figure 4. Representation of NI 5124 Spectral Noise Density on 0.2 V Range, Full Bandwidth, 50 Ω Input Impedance (Does Not Include System Spurs)

Horizontal

Sample Clock

Specification	Value		Comments
Sources	NI PXI-5124	NI PCI-5124	* Internal Sample Clock is locked to the Reference Clock or derived from the onboard VCXO.
	Internal, Onboard Clock (internal VCXO)*	Internal, Onboard Clock (internal VCXO)*	
	External, CLK IN (front panel SMB connector)	External, CLK IN (front panel SMB connector)	
	External, PXI Star Trigger (backplane connector)		
Onboard Clock (Internal VCXO)			
Sample Rate Range	Real-Time Sampling (Single Shot)	Random Interleaved Sampling (RIS)	* Divide by n decimation used for all rates less than 200 MS/s. For more information about Sample Clock and decimation, refer to the <i>NI High-Speed Digitizers Help</i> .
	3.052 kS/s to 200 MS/s*	400 MS/s to 4 GS/s in multiples of 200 MS/s	
Phase Noise Density, Typical	< -100 dBc/Hz at 100 Hz < -120 dBc/Hz at 1 kHz < -130 dBc/Hz at 10 kHz		10 MHz input signal.
Sample Clock Jitter, Typical	≤ 1 ps rms (100 Hz to 100 kHz) ≤ 2 ps rms (100 Hz to 1 MHz)		Includes the effects of the converter aperture uncertainty and the clock circuitry jitter. Excludes trigger jitter.
Timebase Frequency	200 MHz		—

Specification	Value		Comments
Timebase Accuracy	Not Phase-Locked to Reference Clock	Phase-Locked to Reference Clock	—
	±25 ppm	Equal to the Reference Clock accuracy	
Sample Clock Delay Range	±1 Sample Clock period		—
Sample Clock Delay Resolution	≤5 ps		—
External Sample Clock			
External Sample Clock Sources	Source	Frequency Range	Divide by n decimation available where $1 \leq n \leq 65,535$. For more information about Sample Clock and decimation, refer to the <i>NI High-Speed Digitizers Help</i> .
	CLK IN (front panel SMB connector on PXI-5124 and PCI-5124)	50 MHz to 210 MHz	
	PXI Star Trigger (backplane connector on PXI-5124 only)	50 MHz to 105 MHz	
Duty Cycle Tolerance	45% to 55%		—
Exported Reference Clock Destinations	NI PXI-5124	NI PCI-5124	
	CLK OUT (front panel SMB connector) PFI<0..1> (front panel 9-pin mini-circular DIN connector) PXI_Trig<0..7> (backplane connector)	CLK OUT (front panel SMB connector) PFI<0..1> (front panel 9-pin mini-circular DIN connector) RTSI<0..7>	

Specification	Value		Comments
Sample Clock Exporting			
Exported Sample Clock Destinations	Destination	Maximum Frequency	* Decimated Sample Clock only.
	CLK OUT (front panel SMB connector)	210 MHz	
	PXI_Trig<0..6> (backplane connector)*	20 MHz	
	PFI<0..1> (front panel 9-pin mini-circular DIN connector)*	25 MHz	
	RTSI<0..6>*	20 MHz	

Phase-Locked Loop (PLL) Reference Clock

Specification	Value		Comments
Sources	NI PXI-5124	NI PCI-5124	—
	PXI_CLK10 (backplane connector) CLK IN (front panel SMB connector)	RTSI 7 CLK IN (front panel SMB connector)	
Frequency Range	1 MHz to 20 MHz in 1 MHz increments. Default of 10 MHz. The PLL Reference Clock frequency must be accurate to ± 50 ppm.		—
Duty Cycle Tolerance	45% to 55%		—
Exported Reference Clock Destinations	NI PXI-5124	NI PCI-5124	—
	CLK OUT (front panel SMB connector)	CLK OUT (front panel SMB connector)	
	PFI<0..1> (front panel 9-pin mini-circular DIN connector) PXI_Trig<0..6> (backplane connector)	PFI<0..1> (front panel 9-pin mini-circular DIN connector) RTSI<0..7>	

CLK IN (Sample Clock and Reference Clock Input, Front Panel Connector)

Specification	Value	Comments
Input Voltage Range	Sine wave: $0.65 V_{pk-pk}$ to $2.8 V_{pk-pk}$ (0 dBm to 13 dBm) Square wave: $0.2 V_{pk-pk}$ to $2.8 V_{pk-pk}$	—
Maximum Input Overload	$7 V_{rms}$ with $ Peaks \leq 10 V$	—
Impedance	50Ω	—
Coupling	AC	—

CLK OUT (Sample Clock and Reference Clock Output, Front Panel Connector)

Specification	Value	Comments
Output Impedance	50Ω	—
Logic Type	3.3 V CMOS	—
Maximum Drive Current	$\pm 48 \text{ mA}$	—

Trigger

Reference (Stop) Trigger

Specification	Value		Comments
Trigger Types and Sources	Types	Sources	Refer to the following sections and the <i>NI High-Speed Digitizers Help</i> for more information about what sources are available for each trigger type.
	Edge, Window, Hysteresis, Video, Digital, Immediate, and Software	CH 0, CH 1, TRIG, PXI_Trig<0..6>, PFI<0..1>, PXI Star Trigger, Software, and RTSI<0..6>	

Specification	Value			Comments
Time Resolution	TDC	Onboard Clock	External Clock	TDC = Time to Digital Conversion Circuit.
	On	50 ps	N/A	
	Off	5 ns	External Clock Period	
Holdoff	TDC	Onboard Clock	External Clock	—
	On	10 μ s to 85.899 s	N/A	
	Off	2 μ s to 85.899 s	200 \times (External Clock Period) to (2 ³² - 1) \times (External Clock Period)	
Analog Trigger (Edge, Window, and Hysteresis Trigger Types)				
Sources	CH 0 (front panel BNC connector) CH 1 (front panel BNC connector) TRIG (front panel BNC connector)			—
Trigger Level Range	CH 0, CH 1		TRIG (External Trigger)	—
	100% FS		± 5 V	
Trigger Level Resolution	10 bits (1 in 1,024)			—
Edge Trigger Sensitivity	CH 0, CH 1		TRIG (External Trigger)	—
	2.5% FS up to 50 MHz, increasing to 10% FS at 150 MHz		0.25 V _{pk-pk} up to 100 MHz, increasing to 1 V _{pk-pk} at 200 MHz	
Level Accuracy, Typical	CH 0, CH 1		TRIG (External Trigger)	—
	$\pm 4.7\%$ FS up to 10 MHz		± 0.35 V up to 10 MHz	
Trigger Jitter	≤ 80 ps rms			Within ± 5 °C of self-calibration temperature.
Trigger Filters	Low-Frequency (LF) Reject		High-Frequency (HF) Reject	—
	50 kHz		50 kHz	

Specification	Value		Comments
Digital Trigger (Digital Trigger Type)			
Sources	NI PXI-5124	NI PCI-5124	—
	PXI_Trig<0..6> (backplane connector) PFI<0..1> (front panel SMB connector) PXI Star Trigger (backplane connector)	RTSI<0..6> PFI<0..1> (front panel SMB connector)	
Video Trigger (Video Trigger Type)			
Sources	CH 0 (front panel BNC connector) CH 1 (front panel BNC connector) TRIG (front panel BNC connector)		—
Types	Specific Line Any Line Specific Field		—
Standard	Negative sync of NTSC, PAL, or SECAM signal		—

TRIG (External Trigger, Front Panel Connector)

Specification	Value	Comments
Connector	BNC	—
Impedance	1 M Ω in parallel with 22 pF	—
Coupling	AC, DC	—
AC-Coupling Cutoff (-3 dB)	12 Hz	—
Input Voltage Range	± 5 V	—
Maximum Input Overload	$ \text{Peaks} \leq 42$ V	—

PFI 0 and PFI 1 (Programmable Function Interface, AUX Front Panel Connector)

Specification	Value	Comments
Connector	9-pin mini-circular DIN	—
Direction	Bi-directional	—
As an Input (Trigger)		
Destinations	Start Trigger (Acquisition Arm) Reference (Stop) Trigger Arm Reference Advance Trigger	—
Input Impedance	150 k Ω	—
V _{IH}	2.0 V	—
V _{IL}	0.8 V	—
Maximum Input Overload	-0.5 V to 5.5 V	—
Maximum Frequency	25 MHz	—
As an Output (Event)		
Sources	Start Trigger (Acquisition Arm) Reference (Stop) Trigger End of Record Done (End of Acquisition) Probe Compensation (1 kHz, 50% duty cycle square wave, PFI 1 only)	—
Output Impedance	50 Ω	—
Logic Type	3.3 V CMOS	—
Maximum Drive Current	± 24 mA	—
Maximum Frequency	25 MHz	—

Waveform Specifications

Specification	Value		Comments
Onboard Memory Size	8 MB per channel standard (4 megasamples per channel)		* NI-PXI-5124 only.
	32 MB per channel option (16 megasamples per channel)		
	256 MB per channel option (128 megasamples per channel)		
	512 MB per channel option (256 megasamples per channel)*		
Minimum Record Length	1 Sample		—
Number of Pretrigger Samples	Zero up to full Record Length		Single-record mode and multiple-record mode.
Number of Posttrigger Samples	Zero up to full Record Length		Single-record mode and multiple-record mode.
Maximum Number of Records in Onboard Memory	8 MB/channel	21,845	* NI PXI-5124 only.
	32 MB/channel	87,381	
	256 MB/channel	699,050	
	512 MB/channel*	1,398,101	
Allocated Onboard Memory per Record	$(Record\ Length \times 2\ bytes/S) + 200\ bytes$, rounded up to next multiple of 128 bytes or 384 bytes, whichever is greater		—

Calibration

Specification	Value	Comments
Self-Calibration	Self-calibration is done on software command. The calibration corrects for gain, offset, frequency response, triggering, and timing adjustment errors for all input ranges.	—
External Calibration (Factory Calibration)	The external calibration calibrates the VCXO and the voltage reference. Appropriate constants are stored in nonvolatile memory.	—
Interval for External Calibration	2 years	—
Warm-Up Time	15 minutes	—

Power

Specification	Typical Value		Comments
+3.3 VDC	NI PXI-5124	NI PCI-5124	—
	1.3 A	1.3 A	
+5 VDC	1.7 A	2.7 A	
+12 VDC	130 mA	130 mA	
-12 VDC	270 mA	0 A	
Total Power	17.6 W	19.4 W	

Software

Specification	Value	Comments
Driver Software	NI-SCOPE 2.7 or later. NI-SCOPE is an IVI-compliant driver that allows you to configure, control, and calibrate the NI 5124. NI-SCOPE provides application programming interfaces for many development environments.	—
Application Software	NI-SCOPE provides programming interfaces, documentation, and examples for the following application development environments: <ul style="list-style-type: none">• LabVIEW• LabWindows™/CVI™• Measurement Studio• Microsoft Visual C/C++• Microsoft Visual Basic	—
Interactive Soft Front Panel and Configuration	The Scope Soft Front Panel supports interactive control of the NI 5124. The Scope Soft Front Panel is included on the NI-SCOPE CD. National Instruments Measurement & Automation Explorer (MAX) also provides interactive configuration and test tools for the NI 5124. MAX is included on the NI-SCOPE CD.	—

Environment

NI PXI-5124



Note To ensure that the NI PXI-5124 cools effectively, follow the guidelines in the *Maintain Forced Air Cooling Note to Users* included in the NI PXI-5124 kit. The NI PXI-5124 is intended for indoor use only.

Specification	Value	Comments
Operating Temperature	0 °C to +55 °C in all NI PXI chassis except the following: 0 °C to +45 °C when installed in an NI PXI-1000/B or PXI-101x chassis Meets IEC-60068-2-1 and IEC-60068-2-2.	—
Storage Temperature	–40 °C to +71 °C. Meets IEC-60068-2-1 and IEC-60068-2-2.	—
Operating Relative Humidity	10% to 90%, noncondensing. Meets IEC-60068-2-56.	—
Storage Relative Humidity	5% to 95%, noncondensing. Meets IEC-60068-2-56.	—
Operating Shock	30 g, half-sine, 11 ms pulse. Meets IEC-60068-2-27. Test profile developed in accordance with MIL-PRF-28800F.	—
Storage Shock	50 g, half-sine, 11 ms pulse. Meets IEC-60068-2-27. Test profile developed in accordance with MIL-PRF-28800F.	—
Operating Vibration	5 Hz to 500 Hz, 0.31 g _{rms} . Meets IEC-60068-2-64.	—
Storage Vibration	5 Hz to 500 Hz, 2.46 g _{rms} . Meets IEC-60068-2-64. Test profile exceeds requirements of MIL-PRF-28800F, Class B.	—
Altitude	2,000 m maximum (at 25 °C ambient temperature).	—
Pollution Degree	2	—

NI PCI-5124



Note To ensure that the NI PCI-5124 cools effectively, follow the guidelines in the *Maintain Forced Air Cooling Note to Users* included in the NI PCI-5124 kit. Also, to maximize airflow and extend the life of the device, leave any adjacent PCI slots empty. The NI PCI-5124 is intended for indoor use only.

Specification	Value	Comments
Operating Temperature	0 °C to +45 °C. Meets IEC-60068-2-1 and IEC-60068-2-2.	—
Storage Temperature	−40 °C to +71 °C. Meets IEC-60068-2-1 and IEC-60068-2-2.	—
Operating Relative Humidity	10% to 90%, noncondensing. Meets IEC-60068-2-56.	—
Storage Relative Humidity	5% to 95%, noncondensing. Meets IEC-60068-2-56.	—
Storage Shock	50 g, half-sine, 11 ms pulse. Meets IEC-60068-2-27. Test profile developed in accordance with MIL-PRF-28800F.	—
Storage Vibration	5 Hz to 500 Hz, 2.46 g _{rms} . Meets IEC-60068-2-64. Test profile exceeds requirements of MIL-PRF-28800F, Class B.	—
Altitude	2,000 m maximum (at 25 °C ambient temperature).	—
Pollution Degree	2	—

Safety, Electromagnetic Compatibility, and CE Compliance

Specification	Value	Comments
Safety	<p>The NI 5124 meets the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:</p> <ul style="list-style-type: none"> • IEC 61010-1, EN 61010-1 • UL 61010-1 • CAN/CSA-C22.2 No. 61010-1 	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.
Emissions	EN 55011 Class A at 10 m FCC Part 15A above 1 GHz	—
Immunity	EN 61326:1997 + A2:2001, Table 1	—
EMC/EMI	CE, C-Tick, and FCC Part 15 (Class A) Compliant. For EMC compliance, operate this device with shielded cabling.	—
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	—
<p>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.</p>		

Physical

Specification	Value		Comments
Dimensions	NI PXI-5124	NI PCI-5124	—
	3U, One Slot, PXI/cPCI Module 2.0 × 13.0 × 21.6 cm (0.8 × 5.1 × 8.5 in.)	2.0 × 11.3 × 35.5 cm (0.8 × 4.4 × 13.4 in.)	
Weight	383 g (13.5 oz)	455 g (16 oz)	
Front Panel Connectors			
Label	Function	Connector Type	
CH 0	Analog Input	BNC female	
CH 1	Analog Input	BNC female	
TRIG	External Trigger	BNC female	
CLK IN	Sample Clock Input and Reference Clock Input	SMB jack	
CLK OUT	Sample Clock Output and Reference Clock Output	SMB jack	
AUX I/O	PFI 0, PFI 1	9-pin mini-circular DIN	
NI PXI-5124 Front Panel Indicators			
Label	Function	For more information, refer to the <i>NI High-Speed Digitizers Help</i> .	
ACCESS	The ACCESS LED indicates the status of the PCI bus and the interface from the NI PXI-5124 to the controller.		
ACTIVE	The ACTIVE LED indicates the status of the onboard acquisition hardware of the NI PXI-5124.		

Where to Go for Support

The National Instruments Web site is your complete resource for technical support. At ni.com/support you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

A Declaration of Conformity (DoC) is our claim of compliance with the Council of the European Communities using the manufacturer's declaration of conformity. This system affords the user protection for electronic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting ni.com/certification. If your product supports calibration, you can obtain the calibration certificate for your product at ni.com/calibration.

National Instruments corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. National Instruments also has offices located around the world to help address your support needs. For telephone support in the United States, create your service request at ni.com/support and follow the calling instructions or dial 512 795 8248. For telephone support outside the United States, contact your local branch office:

Australia 1800 300 800, Austria 43 0 662 45 79 90 0,
Belgium 32 0 2 757 00 20, Brazil 55 11 3262 3599,
Canada 800 433 3488, China 86 21 6555 7838,
Czech Republic 420 224 235 774, Denmark 45 45 76 26 00,
Finland 385 0 9 725 725 11, France 33 0 1 48 14 24 24,
Germany 49 0 89 741 31 30, India 91 80 51190000,
Israel 972 0 3 6393737, Italy 39 02 413091, Japan 81 3 5472 2970,
Korea 82 02 3451 3400, Lebanon 961 0 1 33 28 28,
Malaysia 1800 887710, Mexico 01 800 010 0793,
Netherlands 31 0 348 433 466, New Zealand 0800 553 322,
Norway 47 0 66 90 76 60, Poland 48 22 3390150,
Portugal 351 210 311 210, Russia 7 095 783 68 51,
Singapore 1800 226 5886, Slovenia 386 3 425 4200,
South Africa 27 0 11 805 8197, Spain 34 91 640 0085,
Sweden 46 0 8 587 895 00, Switzerland 41 56 200 51 51,
Taiwan 886 02 2377 2222, Thailand 662 278 6777,
United Kingdom 44 0 1635 523545

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.