

NI PXI-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**.



Caution-Hot Surface Allow time to cool before removing NI 5124 hardware from the PXI chassis to reduce risk of burns. Exercise caution when handling, as recently-used NI 5124 devices may exceed safe handling temperatures.

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Vertical

Analog Input (Channel 0 and Channel 1)

Table 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.

Table 1. (Continued)

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})	50 Ω and 1 M Ω			Within ± 5 $^{\circ}$ C of self-calibration temperature.
	0.2, 0.4	$\pm(0.65\%$ of Input + 1.3 mV)			
	1, 2	$\pm(0.65\%$ of Input + 1.5 mV)			
	4, 10, 20 (1 M Ω only)	$\pm(0.65\%$ of Input + 10.0 mV)			
Programmable Vertical Offset Accuracy	$\pm 0.4\%$ of offset setting				Within ± 5 $^{\circ}$ C of self-calibration temperature.
DC Drift	$\pm(0.057\%$ of Input + 0.006% of FS + 100 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		

Table 1. (Continued)

Specification	Value			Comments
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 °C.
	All ranges except 0.2	150 MHz	145 MHz up to 40 °C*	
	0.2	85 MHz	75 MHz	
Rise/Fall Time, Typical	Range (V_{pk-pk})	50 Ω and 1 M Ω		—
	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		
AC Coupling Cutoff (-3 dB)	12 Hz			AC coupling available on 1 M Ω only.

Table 1. (Continued)

Specification	Value			Comments
Passband Flatness	Filter Settings	Range (V _{pk-pk})	50 Ω and 1 MΩ	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	

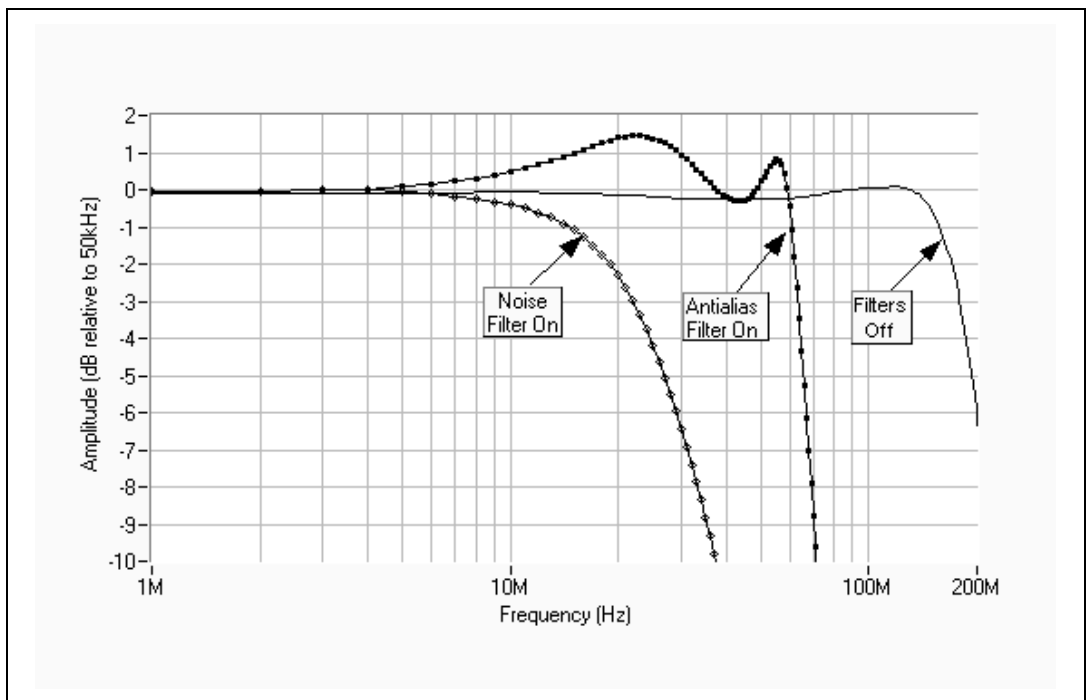


Figure 1. NI 5124 Frequency Response (Typical)

Table 1. (Continued)

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
	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)	N/A	-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 2nd through the 5th 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)	N/A	-58 dBc	
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			

Table 1. (Continued)

Specification	Value					Comments
Signal-to-Noise Ratio (SNR), Typical	Range (V_{pk-pk})	50 Ω		1 M Ω		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 M Ω		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	

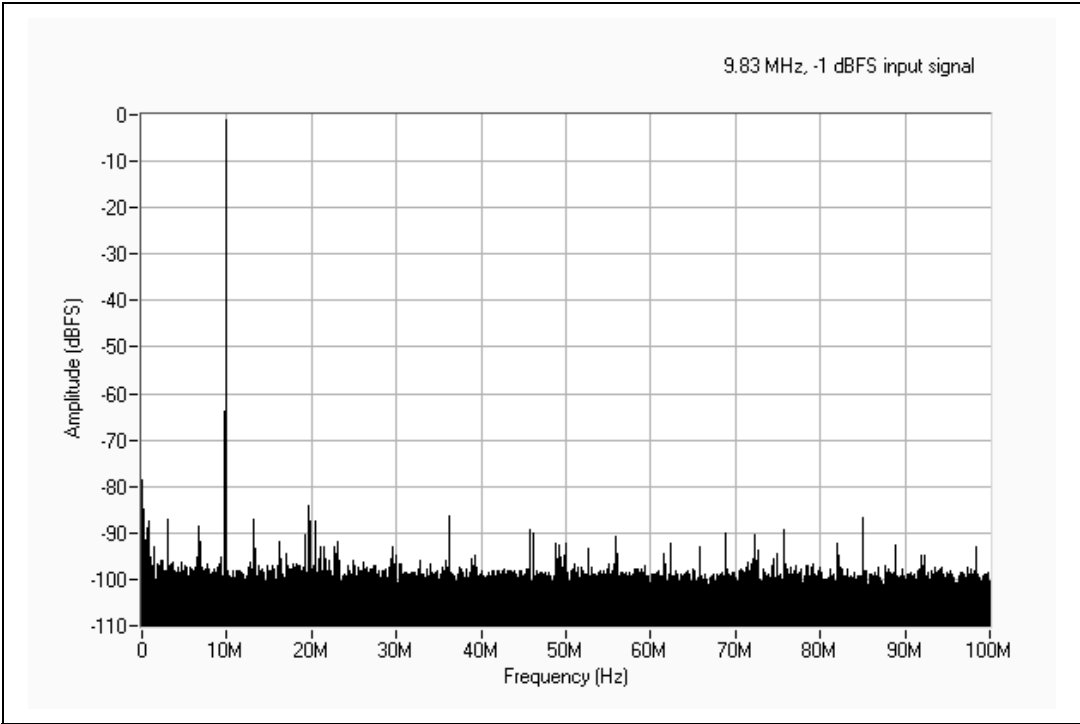


Figure 2. NI PXI-5124 Dynamic Performance, 50 Ω , 1 V_{pk-pk} Range, 262144 Point FFT (Typical)

Table 1. (Continued)

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	94 μV_{rms} (0.047% FS)	104 μV_{rms} (0.052% 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)	N/A	9.4 mV _{rms} (0.047% FS)	
RMS Noise	Range (V_{pk-pk})	50 Ω	1 M Ω	Antialias filter on. 50 Ω terminator connected to input.
	0.2	112 μV_{rms} (0.056% FS)	130 μV_{rms} (0.065% FS)	
	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)	

Table 1. (Continued)

Specification	Value			Comments
RMS Noise	Range (V_{pk-pk})	50 Ω	1 M Ω	Filters off. 50 Ω terminator connected to input.
	0.2	114 μV_{rms} (0.057% FS)	164 μV_{rms} (0.082% 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 (1 M Ω only)	N/A	10.6 mV _{rms} (0.053% FS)	

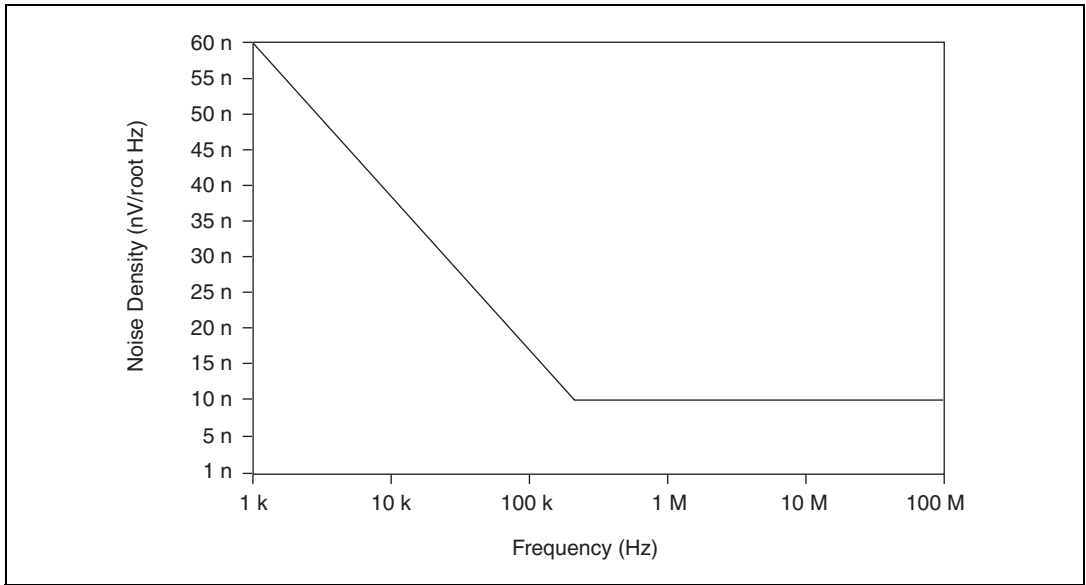


Figure 3. Representation of NI 5124 Spectral Noise Density on 0.2 V Range, Noise Filter Enabled, 1 M Ω Input Impedance

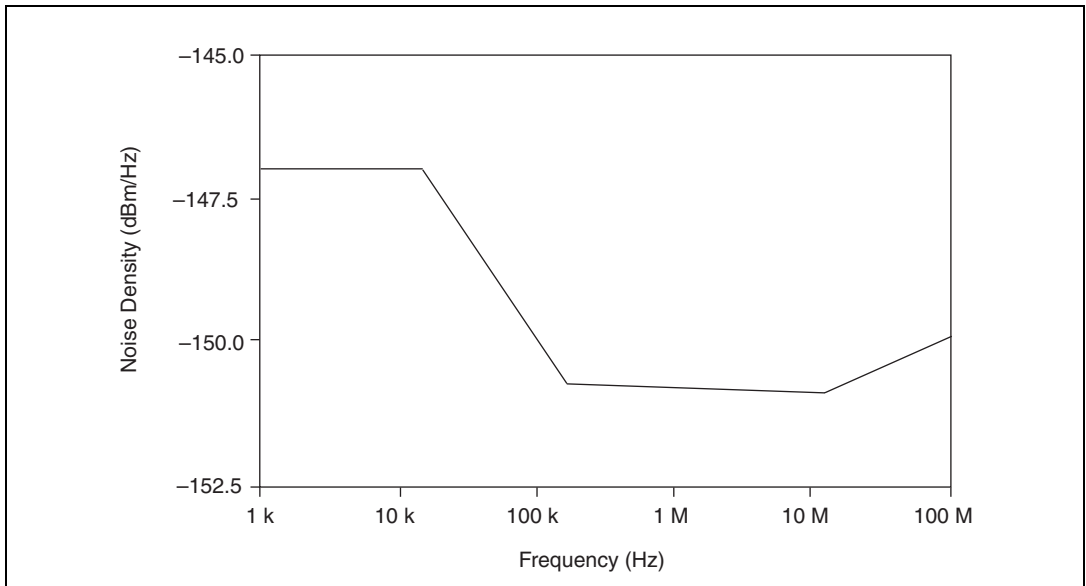


Figure 4. Representation of NI 5124 Spectral Noise Density on 0.2 V Range, Full Bandwidth, 50 Ω Input Impedance (Does Not Include System Spurs)

Horizontal

Sample Clock

Table 2.

Specification	Value		Comments
Sources	Internal, Onboard Clock (internal VCXO)* External, CLK IN (front panel SMB connector) External, PXI Star Trigger (backplane connector)		* Internal Sample Clock is locked to the Reference Clock or derived from the onboard VCXO.
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		—
Timebase Accuracy	Not Phase-Locked to Reference Clock	Phase-Locked to Reference Clock	—
	±25 ppm	Equal to the Reference Clock accuracy	

Table 2. (Continued)

Specification	Value		Comments
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)	50 MHz to 210 MHz	
	PXI Star Trigger (backplane connector)	50 MHz to 105 MHz	
Duty Cycle Tolerance	45% to 55%		—
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

Table 3.

Specification	Value	Comments
Sources	PXI_CLK10 (backplane connector) 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	CLK OUT (front panel SMB connector) PFI <0..1> (front panel 9-pin mini-circular DIN connector) PXI_Trig <0..6> (backplane connector)	—

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

Table 4.

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)

Table 5.

Specification	Value	Comments
Output Impedance	50 Ω	—
Logic Type	3.3 V CMOS	—
Maximum Drive Current	± 48 mA	—

Trigger

Reference (Stop) Trigger

Table 6.

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, and Software	
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)	

Table 6. (Continued)

Specification	Value		Comments
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)	—
	±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	
Digital Trigger (Digital Trigger Type)			
Sources	PXI_Trig <0..6> (backplane connector) PFI <0..1> (front panel SMB connector) PXI Star Trigger (backplane connector)		
Video Trigger (Video Trigger Type)			
Sources	CH 0 (front panel BNC connector) CH 1 (front panel BNC connector) TRIG (front panel BNC connector)		—

Table 6. (Continued)

Specification	Value	Comments
Types	Specific Line Any Line Specific Field	—
Standard	Negative sync of NTSC, PAL, or SECAM signal	—

TRIG (External Trigger, Front Panel Connector)

Table 7.

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	Peaks ≤ 42 V	—

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

Table 8.

Specification	Value	Comments
Connector	9-pin mini-circular DIN	—
Direction	Bi-directional	—

Table 8. (Continued)

Specification	Value	Comments
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

Table 9.

Specification	Value		Comments
Onboard Memory Size	8 MB per channel standard (4 megasamples per channel)		—
	32 MB per channel option (16 megasamples per channel)		
	256 MB per channel option (128 mega-samples 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 per channel standard	32,768	—
	32 MB per channel option	131,072	
	256 MB per channel option	1,048,576	
	512 MB per channel option	2,097,152	
Allocated Onboard Memory per Record	<i>Record Length</i> in samples + 100 samples. Round the sum up to the next multiple of 64 samples. 1 sample = 2 bytes		—

Calibration

Table 10.

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

Table 11.

Specification	Typical Value	Comments
+3.3 VDC	1.3 A	—
+5 VDC	1.7 A	
+12 VDC	130 mA	
-12 VDC	270 mA	
Total Power	17.6 W	

Software

Table 12.

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



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.

Table 13.

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	—

Safety, Electromagnetic Compatibility, and CE Compliance

Table 14.

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

Table 15.

Specification	Value	Comments
Dimensions	16 cm × 10 cm × 2 cm (6.3 in. × 3.9 in. × 0.78 in.) Single 3U PXI Slot. CompactPCI compatible.	—
Weight	383 g (13.5 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.	

Technical Support Resources

NI Web Support

National Instruments Web support is your first stop for help in solving installation, configuration, and application problems and questions. Online problem-solving and diagnostic resources include frequently asked questions, knowledge bases, product-specific troubleshooting wizards, manuals, drivers, software updates, and more. Web support is available through the Technical Support section of ni.com.

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.

Worldwide Support

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. You can access our branch office Web sites from the Worldwide Offices section of ni.com. Branch office Web sites provide up-to-date contact information, support phone numbers, email addresses, and current events.

If you have searched the technical support resources on our Web site and still cannot find the answers you need, contact your local office or National Instruments corporate. For telephone support in the United States, 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 (Calgary) 403 274 9391, Canada (Ottawa) 613 233 5949,
Canada (Québec) 450 510 3055, Canada (Toronto) 905 785 0085,
Canada (Vancouver) 604 685 7530, 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, Malaysia 603 9131 0918,
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 65 6226 5886,
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