SPECIFICATIONS

MT PXIe-6502

R Series Reconfigurable I/O Module(AI,AO,DIO),8 AI, 24 AO, 64 DIO, 1MS/s AIO, Kintex-7 325T FPGA

This document contains the specifications for MT PXIe-6301.Specifications are typical at 25°C unless otherwise noted.

Caution Using the MT PXIe-6301 in a manner not described in this document may impair the protection the MT PXIe-6301 provides.

Analog Input

Number of channels	8
ADC resolution	16 bits
Type of ADC	Successive approximation register (SAR)
Input range	±10V
Input Voltage Ranges	
Measurement Voltage(AI+ to AI-)	
Minimum(V)	±10.2V
Typical(V)	±10.4V
Maximum	±10.6V
Overvoltage protection	±30 V
Conversion time	1 μs minimum
Sample rate	1 MS/s maximum per channel

MANGOTREE

Table 1. Accuracy

Measurement Conditions		Percent of Reading (Gain Error)	Percent of Range (Offset Error)
Calibrated	Maximum (-40 °C to 70 °C)	0.142%	±0.070%
	Typical (23 °C ±5 °C)	0.010%	±0.007%

CMRR	120 dB minimum
-3 dB bandwidth	>15 kHz
Input impedance	1MΩ
Crosstalk	-90 dB
Total Harmonic Distortion(THD)	-107dB
No missing codes	16 bits
DNL	±0.4LSB
INL	±0.5LSB
SNR	90 dB
SFDR	109 dB

Analog Output

Number of channels	24
DAC resolution	16 bits
Type of DAC	String
Output voltage range	±10V
Current drive	±10 mA per channel maximum
Output impedance	375 Ω
Sample rate	1 MS/s maximum per channel

Table 2. Accuracy

Measurement Conditions		Percent of Reading (Gain Error)	Percent of Range (Offset Error)
Calibrated	Maximum (-40 °C to 70 °C)	0.214%	0.075%
	Typical (25 °C, ±5 °C)	0.010%	0.007%

Gain drift	±0.1 ppm/°C
Zero-code drift	±0.05 ppm/°C
Protection	
Overvoltage	±30V
Short-circuit	Indefinitely
Noise	
Output noise	10nV / √Hz
Slew rate	25V/us
Crosstalk	74dB
Capacitive drive	1nF
DNL	±1 LSB maximum
INL (endpoint)	±1 LSB maximum

Digital I/O

Table 3. Channel Frequency

Connector	Number of Channels	Maximum Frequency
Connector 0	16	80 MHz
Connector 1	16	80 MHz
Connector 2	32	80 MHz

Compatibility	LVTTL, LVCOMS
Logic family	Fixed
Voltage level	3.3V

Table 4. Digital Output Logic Levels

Logic Family	Current	Output Low Voltage(VoL) Maximum	Output HighVoltage(VoH) Maximum
3.3V	100uA	0.20 V	3.00 V
	4mA	0.40 V	2.40 V

Maximum DC output current per channel	
Source	4.0 mA
Sink	4.0 mA
Output impedance	50 Ω
Direction control of digital I/O channels	Per Channel
Minimum I/O pulse width	6.25 ns
Minimum sampling period	5 ns

Table 5. Digital Input Logic Levels

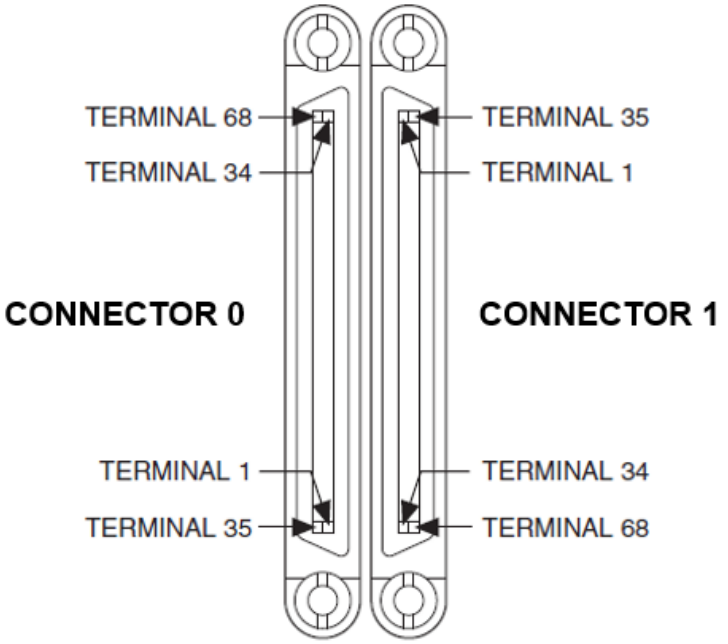
Logic Family	Input Low Voltage(VIL) Maximum	Input HighVoltage(VIH) Maximum
3.3V	0.80 V	2.00 V

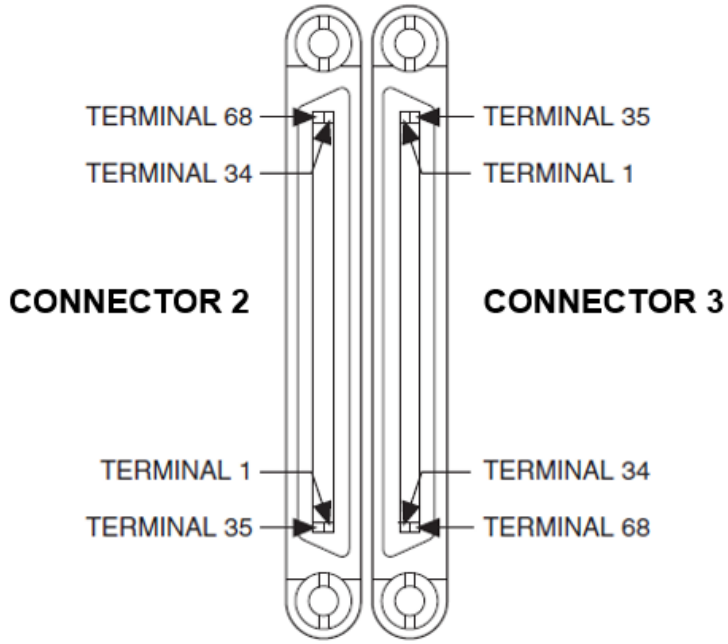
Minimum input	-0.3 V
Maximum input	3.6V
Input leakage current	± 15uA maximum
Input impedance	50kΩ typical, pull-down

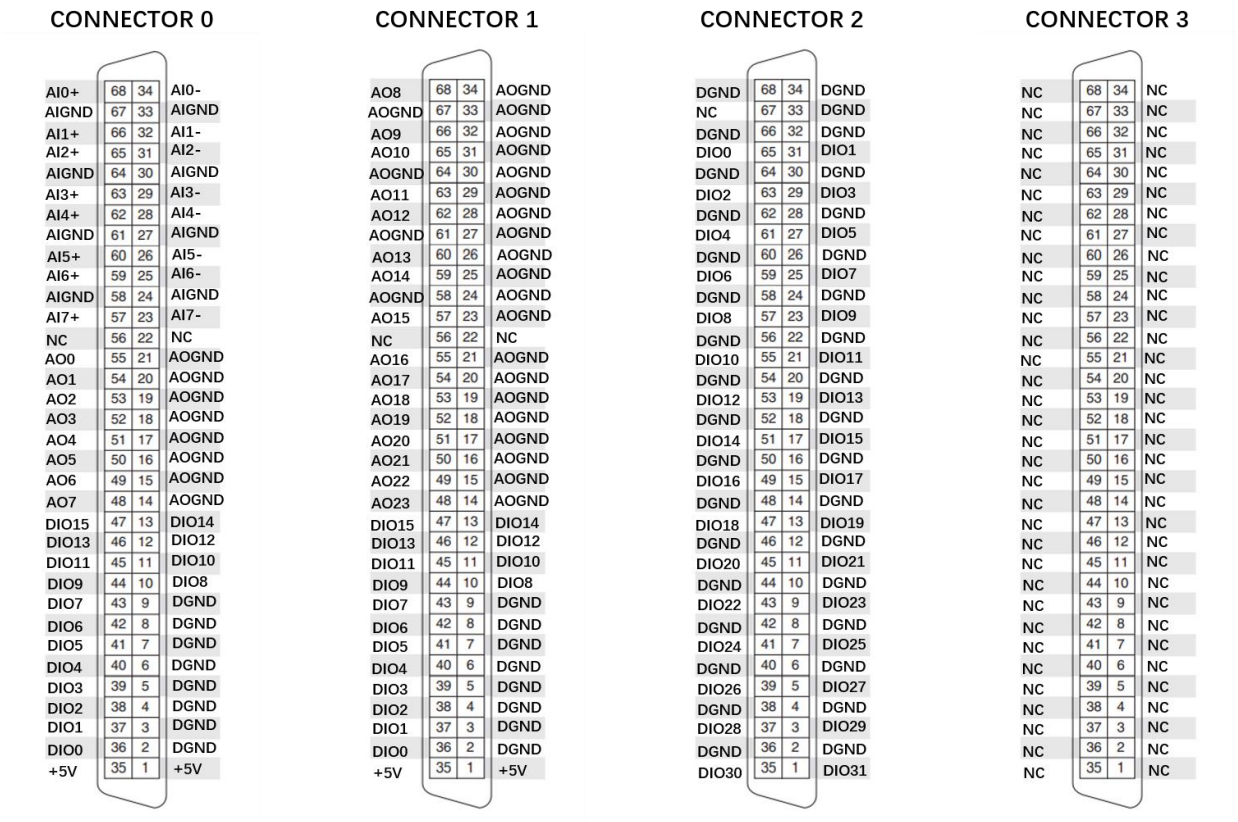
Reconfigurable FPGA

FPGA type	Kintex-7 325T
Number of flip-flops	407,600
Number of LUTs	203,800
Embedded Block RAM	16,020 kbits
Number of DSP48 slices	840

Pinouts


TERMINAL 68
TERMINAL 34
TERMINAL 35
TERMINAL 1
CONNECTOR 0
CONNECTOR 1
TERMINAL 1
TERMINAL 35
TERMINAL 34
TERMINAL 68


TERMINAL 68
TERMINAL 34
TERMINAL 35
TERMINAL 1
CONNECTOR 2
CONNECTOR 3
TERMINAL 1
TERMINAL 35
TERMINAL 34
TERMINAL 68



Maximum Power Requirements

Power requirements are dependent on the digital output loads and configuration of the LabVIEW FPGA VI used in your application.

+3.3 V	3 A
+12 V	2 A

Safety Voltages

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2014/34/EU; Potentially Explosive Atmospheres (ATEX)

Shock and Vibration

To meet these specifications, you must panel mount the system.

Operating vibration	
Random (IEC 60068-2-64)	5 g_{rms}, 10 Hz to 500 Hz
Sinusoidal (IEC 60068-2-6)	5 g, 10 Hz to 500 Hz
Operating shock (IEC 60068-2-27)	30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations

Environmental

Refer to the manual for the chassis you are using for more information about meeting these specifications.

Operating temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 70 °C
Storage temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 85 °C
Ingress protection	IP40
Operating humidity (IEC 60068-2-78)	10% RH to 90% RH, noncondensing Storage
humidity (IEC 60068-2-78)	5% RH to 95% RH, noncondensing Pollution
Degree	2
Maximum altitude	4,000 m

Indoor use only.