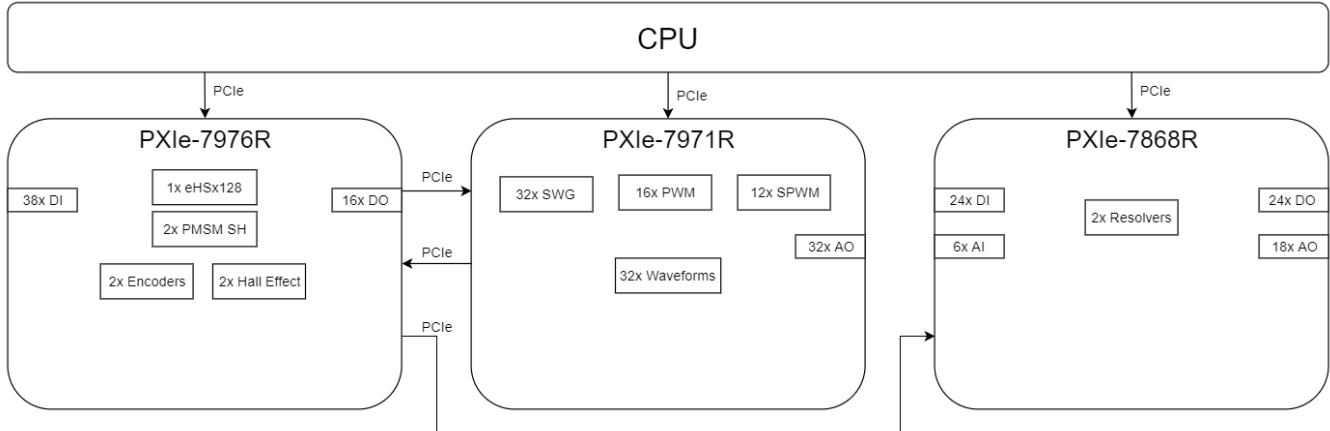


(Archived) eHSx128_Dual_PMSM_SH_IO_7976R



This Hardware Configuration has been archived and should not be used in new projects. Please contact [OPAL-RT Support](#) for more information.

Specifications



IO Capabilities

This configuration requires the following FPGA boards and adapter modules. Please refer to the linked product page for additional information.

Quantity	FPGA Board	FlexRIO Adapter Module
1	PXIe-7868R	-
1	PXIe-7971R	NI 5742R
1	PXIe-7976R	NI 6581B

PXIe-7976R

Setup

In this configuration, the NI PXIe-7976R is used with the NI 6581B FlexRIO Adapter Module. Please refer to [NI 6581B](#) product page for additional information.

IO Type	Details
Digital Input	38 CH, 100MHz, 3.3V TTL (Connectors A and B)
Digital Output	16 CH, 100MHz, 3.3V TTL (Connector A) User-defined mapping to Digital Outputs available with tunable Polarity. <ul style="list-style-type: none"> CPU (VeriStand) Encoders Hall Effect Sensors Digital Inputs

Refer to [7976R+6581B IO Assigment \[eHSx128_Dual_PMSM_SH_IO_7976R\]](#) to see the IO assignment.

Modeling Capabilities

This configuration includes a pre-compiled firmware/bitfile which contains the following features:

Features	Additional Information
1x eHSx128 Solver	User-defined mapping to Circuit Sources available: <ul style="list-style-type: none"> • CPU (VeriStand) • Sinewaves • PMSM SH User-defined mapping to Circuit Switches available: <ul style="list-style-type: none"> • CPU (VeriStand) • PWMs • SPWMs • Digital Inputs
2x PMSM Spatial Harmonics Model	V2 implementation of the PMSM SH machine model. Refer to Permanent Magnet Synchronous Machine Models Comparison for more information
1x Encoder/motor	Assignable to any DO port
1x Hall Effect Sensor/motor	Assignable to any DO port

PXIe-7971R

Setup

In this configuration, the NI PXIe-7971R is used with the NI 5742R FlexRIO Adapter Module. Please refer to [NI 5742R](#) product page for additional information.

IO Type	Details
Analog Output	32 CH, 1MS's, 16-bit User-defined mapping to Analog Outputs available with tunable Gain, Offset, and Min/Max Saturation. <ul style="list-style-type: none"> • Measurements • Sinewaves • CPU (VeriStand) • PMSM SH

Refer to [7971R+5742R IO Assignment \[eHSx128_Dual_PMSM_SH_IO_7976R\]](#) to see the IO assignment.

Modeling Capabilities

This configuration includes a pre-compiled firmware/bitfile which contains the following features:

Features	Additional Information
32x Sinewave Generators	
16x PWM Generators	
12x Sinusoidal PWM Generators	
Analog Output Mapping and Rescaling	
32x Waveform Acquisition Channels	

PXIe-7868R

IO Type	Details
Analog Input	6 CH, 1MS's, 16-bit, +/- 10V Input Signal Range, Differential Tunable Gain, Offset, and Min/Max Saturation

Analog Output	<p>18 CH, 1MS/s, 16-bit</p> <p>User-defined mapping to Analog Outputs available with tunable Gain, Offset, and Min/Max Saturation.</p> <ul style="list-style-type: none"> • CPU (VeriStand) • Resolvers
Digital Input	24 CH, 80MHz, 3.3V TTL (Connector 1)
Digital Output	<p>24 CH Total:</p> <ul style="list-style-type: none"> • 16 CH, 10MHz, 3.3V TTL (Connector 0) • 8 CH, 80MHz, 3.3V TTL (Connector 1) <p>User-defined mapping to Digital Outputs available with tunable Polarity.</p> <ul style="list-style-type: none"> • CPU (VeriStand) • Digital Inputs

Refer to [7868 IO Assignment \[eHSx128_Dual_PMSM_SH_IO_7976R\]](#) to see the IO assignment.

Modeling Capabilities

This configuration includes a pre-compiled firmware/bitfile which contains the following features:

Features	Additional Information
1x Resolver/motor	<p>PMSM 1 excitation signal is connected to <i>A/I0</i></p> <p>PMSM 2 excitation signal is connected to <i>A/I1</i></p>
Analog Output Mapping and Rescaling	