

# NI 6585 Specifications

This document lists the specifications of the National Instruments 6585 FlexRIO low-voltage differential (LVDS) adapter module. Pair these specifications with your NI FlexRIO FPGA module specifications. Refer to the *Getting Results with the NI PXI-6585R* document for instructions on how to install and configure the NI PXI-6585R. These specifications are typical at 25 °C unless otherwise noted.

## Channel Specifications per Connector

Number of DDC connectors ..... 2, DDCA and DDCB  
 Number of digital I/O channels ..... 42 total (16 data, 5 PFI per DDC connector)  
 Direction control of data channels ..... Per channel  
 Power up state ..... Drivers disabled, 100  $\Omega$  differential impedance

Characteristic impedance ..... 100  $\Omega$  differential nominal  
 Maximum data rate ..... 200 MBit/s single data rate (SDR); 300 MBit/s double data rate (DDR)

## Acquisition

Acquisition voltage levels

Differential voltage threshold .....  $\pm 50$  mV  
 Voltage range ..... 0 V min, 2.4 V max

Input impedance ..... 100  $\Omega$  differential nominal

Maximum data rate ..... 200 MBit/s single data rate (SDR); 300 MBit/s double data rate (DDR)

## Generation

Generation voltage levels (50  $\Omega$  LVDS load)

	Min	Max
Differential	247 mV	454 mV
Common Mode	1.125 V	1.375 V



**Note** Generation expects 100  $\Omega$  termination at the destination in addition to the 100  $\Omega$  input termination of the NI 6585.

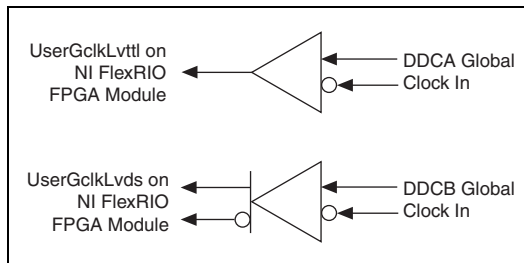
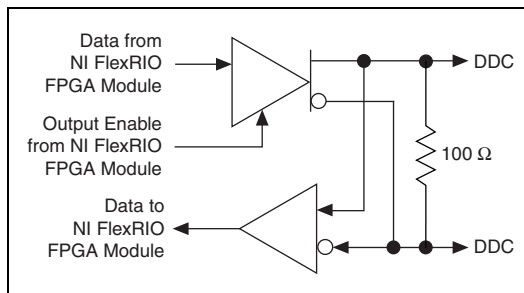


Figure 1. Clock Input



**Notes:** Applies to each data and PFI channel.  
 CLOCK OUT is the same as PFI 0.

Figure 2. DIO <0..15> Data Channel, PFI <0..4>

# Pinout and Signal Information

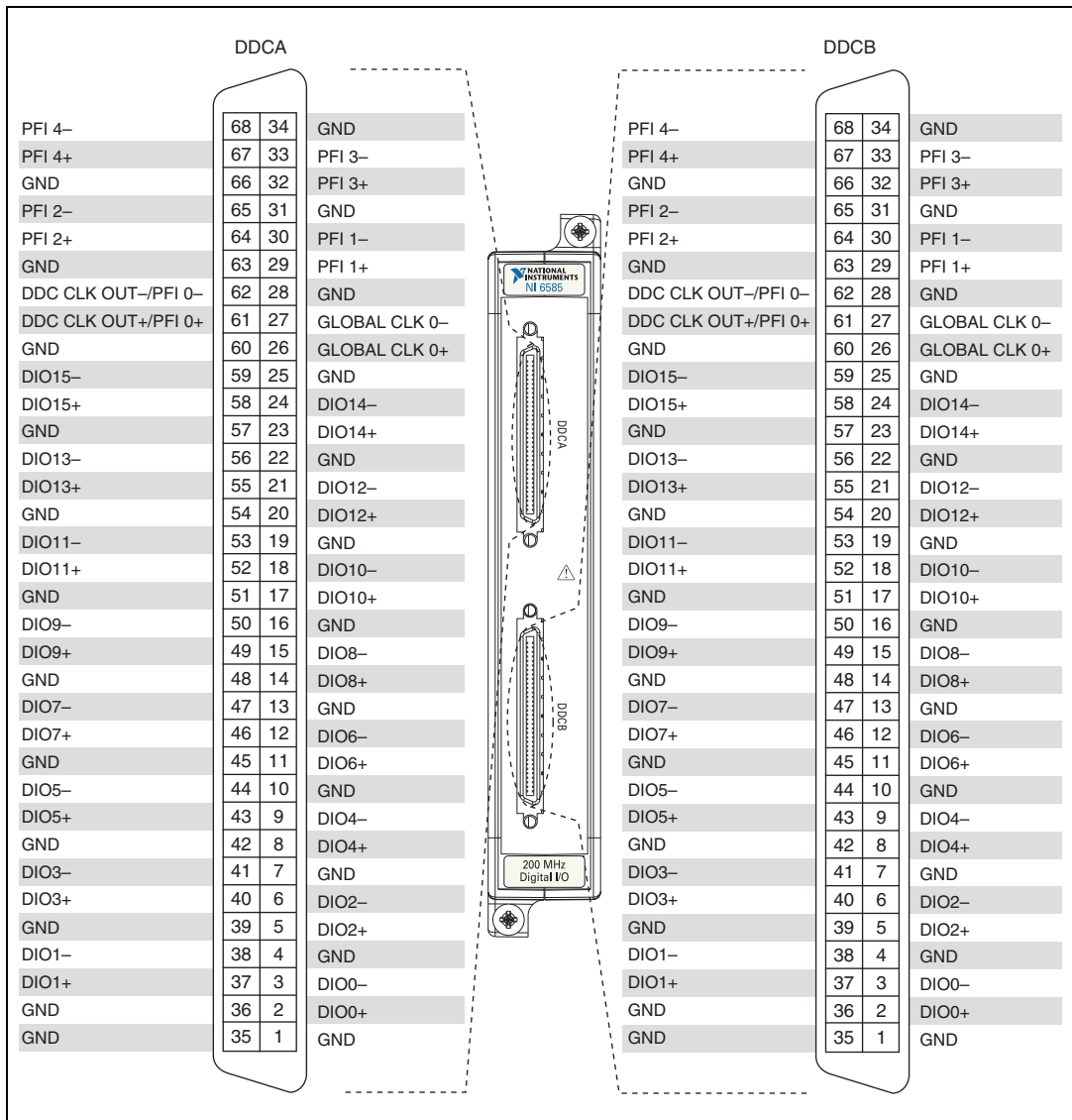


Figure 3. NI 6585 Pinout

Table 1 contains pin location and signal information for the NI 6585.



**Note** DIO <0..15>+/-, PFI <0..4>+/-, and DDC CLOCK OUT appear on both connectors, DDCA and DDCB.

**Table 1.** NI 6585 DDC Connector Pins

Signal Name	Pin(s)	Signal Type	Signal Description
GLOBAL CLOCK 0+	26 on DDCA	Clock	Input terminal for the external clock source, which can be used for dynamic acquisition or generation.
GLOBAL CLOCK 0-	27 on DDCA		
GLOBAL CLOCK 1+	26 on DDCB		
GLOBAL CLOCK 1-	27 on DDCB		
DIO <0..15>+	2, 5, 8, 11, 14, 17, 20, 23, 37, 40, 43, 46, 49, 52, 55, 58	Data	Positive terminal of LVDS digital I/O data channels 0 through 15.
DIO <0..15>-	3, 6, 9, 12, 15, 18, 21, 24, 38, 41, 44, 47, 50, 53, 56, 59	Data	Negative terminal of LVDS digital I/O data channels 0 through 15.
DDC CLOCK OUT+/ PFI 0+	61	Clock/Data	Positive output terminal for the exported Sample clock/ Positive Programmable Function Interface terminal 0
DDC CLOCK OUT-/ PFI 0-	62	Clock/Data	Negative output terminal for the exported Sample clock/ Negative Programmable Function Interface terminal 0
PFI <1..4>+	29, 64, 32, 67	Data	Positive terminal of the Programmable Function Interface LVDS digital I/O channels 1 through 4.
PFI <1..4>-	30, 65, 33, 68	Data	Negative terminal of the Programmable Function Interface LVDS digital I/O channels 1 through 4.
GND	1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 35, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66	Ground	Ground reference for signals.

Table 2 lists the NI 6585 connector signals and corresponding the NI FlexRIO FPGA module signals necessary for designing a custom CLIP.

**Table 2.** NI 6585 Connector Signals and NI FlexRIO FPGA Module Signals

NI 6585		NI FlexRIO FPGA Module		
Connector	Signal Name	GPIO Out	GPIO Out Enable	GPIO In
DDCA	GLOBAL CLOCK 0	—	—	GCk_SE
	DIO 0+/-	GPIO_30_n	GPIO_31	GPIO_31_n
	DIO 1+/-	GPIO_12_n	GPIO_13	GPIO_13_n
	DIO 2+/-	GPIO_32	GPIO_32_n	GPIO_15_n
	DIO 3+/-	GPIO_14	GPIO_14_n	GPIO_15
	DIO 4+/-	GPIO_27_n	GPIO_28	GPIO_28_n
	DIO 5+/-	GPIO_9_n	GPIO_10	GPIO_10_n
	DIO 6+/-	GPIO_29	GPIO_29_n	GPIO_30
	DIO 7+/-	GPIO_11	GPIO_11_n	GPIO_12
	DIO 8+/-	GPIO_22	GPIO_22_n	GPIO_23
	DIO 9+/-	GPIO_6_n	GPIO_7	GPIO_7_n
	DIO 10+/-	GPIO_26	GPIO_26_n	GPIO_27
	DIO 11+/-	GPIO_8	GPIO_8_n	GPIO_9
	DIO 12+/-	GPIO_19	GPIO_19_n	GPIO_20
	DIO 13+/-	GPIO_3_n	GPIO_4	GPIO_4_n
	DIO 14+/-	GPIO_20_n	GPIO_21	GPIO_21_n
	DIO 15+/-	GPIO_5	GPIO_5_n	GPIO_6
	DDC CLOCK OUT+/PFI 0+ DDC CLOCK OUT-/PFI 0-	GPIO_0	GPIO_0_n	GPIO_23_n
	PFI 1+/-	GPIO_1	GPIO_1_n	GPIO_24
	PFI 2+/-	GPIO_16	GPIO_16_n	GPIO_24_n
PFI 3+/-	GPIO_17	GPIO_17_n	GPIO_25	
PFI 4+/-	GPIO_18	GPIO_18_n	GPIO_25_n	

**Table 2.** NI 6585 Connector Signals and NI FlexRIO FPGA Module Signals (Continued)

NI 6585		NI FlexRIO FPGA Module		
Connector	Signal Name	GPIO Out	GPIO Out Enable	GPIO In
DDCB	GLOBAL CLOCK 1	—	—	GClk_LVDS
	DIO 0+/-	GPIO_46	GPIO_46_n	GPIO_47
	DIO 1+/-	GPIO_62_n	GPIO_63	GPIO_63_n
	DIO 2+/-	GPIO_47_n	GPIO_48	GPIO_48_n
	DIO 3+/-	GPIO_64	GPIO_64_n	GPIO_65
	DIO 4+/-	GPIO_43	GPIO_43_n	GPIO_44
	DIO 5+/-	GPIO_59_n	GPIO_60	GPIO_60_n
	DIO 6+/-	GPIO_44_n	GPIO_45	GPIO_45_n
	DIO 7+/-	GPIO_61	GPIO_61_n	GPIO_62
	DIO 8+/-	GPIO_39	GPIO_39_n	GPIO_40
	DIO 9+/-	GPIO_54	GPIO_54_n	GPIO_55
	DIO 10+/-	GPIO_40_n	GPIO_41	GPIO_41_n
	DIO 11+/-	GPIO_55_n	GPIO_56	GPIO_56_n
	DIO 12+/-	GPIO_36	GPIO_36_n	GPIO_37
	DIO 13+/-	GPIO_51	GPIO_51_n	GPIO_52
	DIO 14+/-	GPIO_37_n	GPIO_38	GPIO_38_n
	DIO 15+/-	GPIO_52_n	GPIO_53	GPIO_53_n
	DDC CLOCK OUT+/PFI 0+ DDC CLOCK OUT-/PFI 0-	GPIO_49	GPIO_49_n	GPIO_57
	PFI 1+/-	GPIO_50	GPIO_50_n	GPIO_57_n
	PFI 2+/-	GPIO_33	GPIO_33_n	GPIO_58
PFI 3+/-	GPIO_34	GPIO_34_n	GPIO_58_n	
PFI 4+/-	GPIO_35	GPIO_35_n	GPIO_59	

## Power

Power requirements from the NI FlexRIO FPGA module

$V_{CCoA}$ .....	315 mA, 1.1 W max
$V_{CCoB}$ .....	315 mA, 1.1 W max
+3.3 V .....	36 mA, 0.12 W max

## Physical

Dimensions .....	12.9 × 2.0 × 12.1 cm (5.1 × 0.8 × 4.7 in.)
Weight .....	284 g (10 oz)
Front panel connectors .....	Two 68-pin VHDCI connectors

## Environmental

The NI 6585 is intended for indoor use only.

Operating environment.....	0 °C to 55 °C, Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.
Relative humidity range .....	10% to 90%, noncondensing, Tested in accordance with IEC-60068-2-56.
Altitude.....	2,000 m at 25 °C ambient temperature
Pollution Degree.....	2
Storage environment	
Ambient temperature range .....	-20 °C to 70 °C, Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.
Relative humidity range.....	5% to 95%, noncondensing, Tested in accordance with IEC-60068-2-56.



**Note** Clean the device with a soft, non-metallic brush. Make sure that the device is completely dry and free from contaminants before returning it to service.

## Safety

This product meets the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1



**Note** For UL and other safety certifications, refer to the product label or the *Online Product Certification* section.

## Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326 (IEC 61326): Class A emissions;  
Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions



**Note** For the standards applied to assess the EMC of this product, refer to the *Online Product Certification* section.



**Note** For EMC compliance, operate this product according to the documentation.



**Note** For EMC compliance, operate this device with shielded cables.

## CE Compliance

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

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

## Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

## Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *NI and the Environment* Web page at [ni.com/environment](http://ni.com/environment). This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

## Waste Electrical and Electronic Equipment (WEEE)



**EU Customers** At the end of their life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit [ni.com/environment/weee.htm](http://ni.com/environment/weee.htm).

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