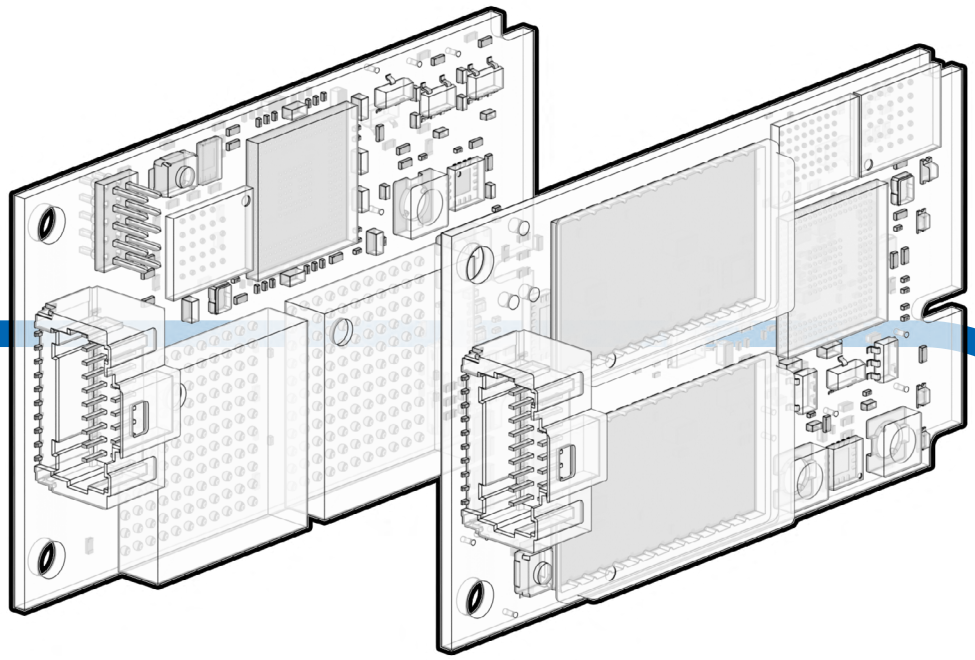
Datasheet



DE150100

Aviolinks®

mPCIe MIL-STD-1553 Module 2 CH

DEICO

www.deico.com.tr

Contents

1. Description

DE150100 Aviolinks® mPCIe MIL-STD-1553 Module 2 CH is a full-size PCI express mini card. DE150100 support 2-channel transformer-coupled dual-redundant MIL-STD-1553B interface. DE150100 is suitable for embedded and portable systems. DE150100 supports bus controller, remote terminal and bus monitoring operating modes.

1.1. Key Features

- 2-channel transformer-coupled dual-redundant MIL-STD-1553B interface
- Bus controller/remote terminal/bus monitor operating mode
- 2 remote terminal per channel
- BC external trigger/SS flag
- Comprehensive built-in self tests
- PCI express mini card electromechanical specification revision 1.1
- Maximum power consumption of 4 W
- Driver and test software support for Windows, Linux and VxWorks
- MIL-STD-810G environmental requirements compliant
- Lockable connector for MIL-STD-1553B
- Suitable for embedded and portable systems

2. Hardware Overview

2.1. Hardware Specifications

The DE150100 is compliant with the PCI Express Mini Card Electromechanical Specification Revision 1.2, and follows full-size card dimensions except for the height requirement. The maximum allowed component height is 2.4 mm; however, the component height of the DE150100 is 8.63 mm.

ESD can damage electronic components without adequate protection and may cause permanent damage to the device.

The DE150100 does not support hot-plug operation; therefore, the device shall not be inserted or removed while the motherboard power is on.

2.1.1. Block Diagram

DE150100 Aviolinks® mPCIe MIL-STD-1553 Module 2 CH block diagram is shown in Figure 1.

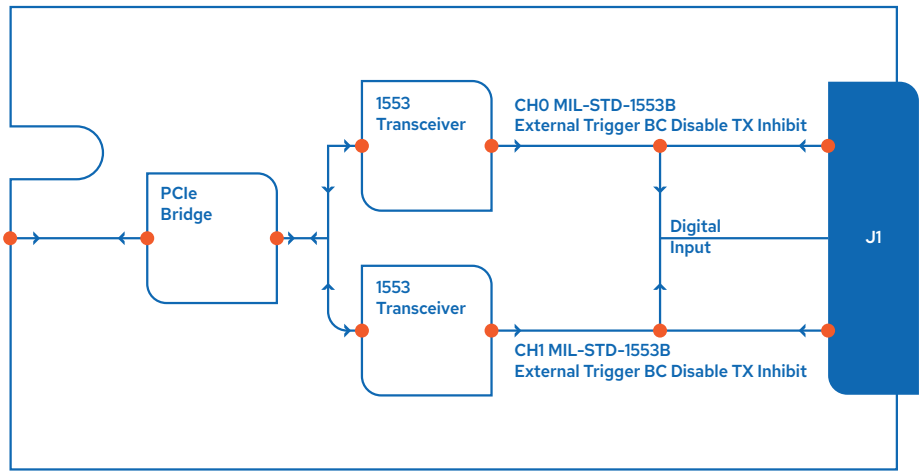


Figure 1: Block Diagram of DE150100 Aviolinks® mPCIe MIL-STD-1553 Module 2 CH

2.1.2. Electrical Specifications

Table 1: Electrical Specifications

Parameter	Symbol	Min	Typ	Max	Units
Power Supply Requirements					
Operating Voltage 3.3 V	+3.3 V	3.135	3.3	3.465	V
Power Supply Current 3.3 V					
Idle	–	TBD	TBD	TBD	mA
100% Transmitter Duty Cycle	–	TBD	TBD	TBD	mA
Digital Inputs					
Input Voltage High	V_{IH}	2	–	–	V
Input Voltage Low	V_{IL}	–	–	0.8	V
Receiver					
Input Resistance (Differential)	R_{IN}	2	–	–	kΩ
Input Capacitance (Differential)	C_{IN}	–	–	5	pF
Input Level (Differential)	V_{IN}	–	–	9	V_{P-P}
Input Common Mode Voltage	V_{ICM}	-10	–	10	V_{-pk}
Transmitter					
Output Voltage (Direct Coupled, 35 Ω Load)	V_{OUT}	6.1	–	9	V_{P-P}
Output Voltage (Transformer Coupled, 70 Ω Load)	V_{OUT}	20	–	27	V_{P-P}
Output Resistance	R_{OUT}	10	–	–	kΩ
Output Capacitance	C_{OUT}	–	–	15	pF

2.1.3. Physical Specifications

Board dimensions are shown in Figure 2.

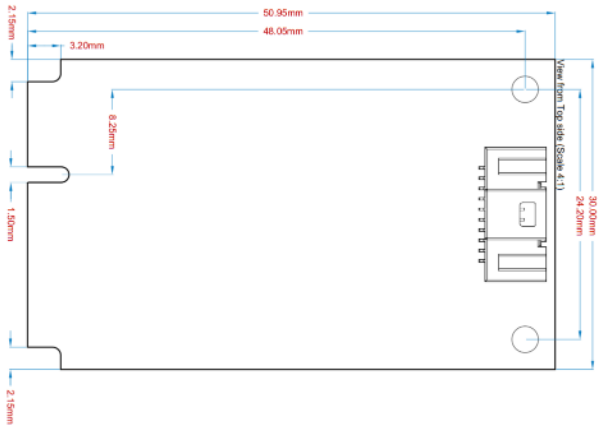


Figure 2: Board Dimensions of DE150100 Aviolinks® mPCIe MIL-STD-1553 Module 2 CH

2.1.4. Environmental Specifications

Board environmental specifications are given in Table 2.

Table 2: Environmental Specifications

Specification	Condition	Value
Operating Humidity	Relative, non-condensing	10% - 95%
Storage Humidity	Relative, non-condensing	5% - 95%
Operating Temperature	–	-40 °C - +85 °C
Storage Temperature	–	-55 °C - +105 °C

3. Signal Connections

J1 connector pinout is given in Table 3. J1 connector product number and mating are given in Table 4.

Table 3: J1 Connector Pinout

Pin	Name	Pin	Name
1	CH0_BUSA_P	**2**	CH0_BUSB_P
3	CH0_BUSA_N	**4**	CH0_BUSB_N
5	GND	**6**	GND
7	CH1_BUSA_P	**8**	CH1_BUSB_P
9	CH1_BUSA_N	**10**	CH1_BUSB_N
11	GND	**12**	GND
13	TRIG_SS_CH0	**14**	TRIG_SS_CH1
15	BC_DIS_CH0	**16**	BC_DIS_CH1
17	TX_INH_CH0	**18**	TX_INH_CH1
19	DIG_IRIG_IN	**20**	GND

Table 4: Connector Product Numbers

Connector	Product Number	MFG
J1 Connector	2035662007	Molex
J1 Mating Connector	5011892010	Molex
J1 Mating Connector Pin	5011937000	Molex

Figure 3: J1 Connector

PCIe Mini Card System connector pinout is given in Table 5.

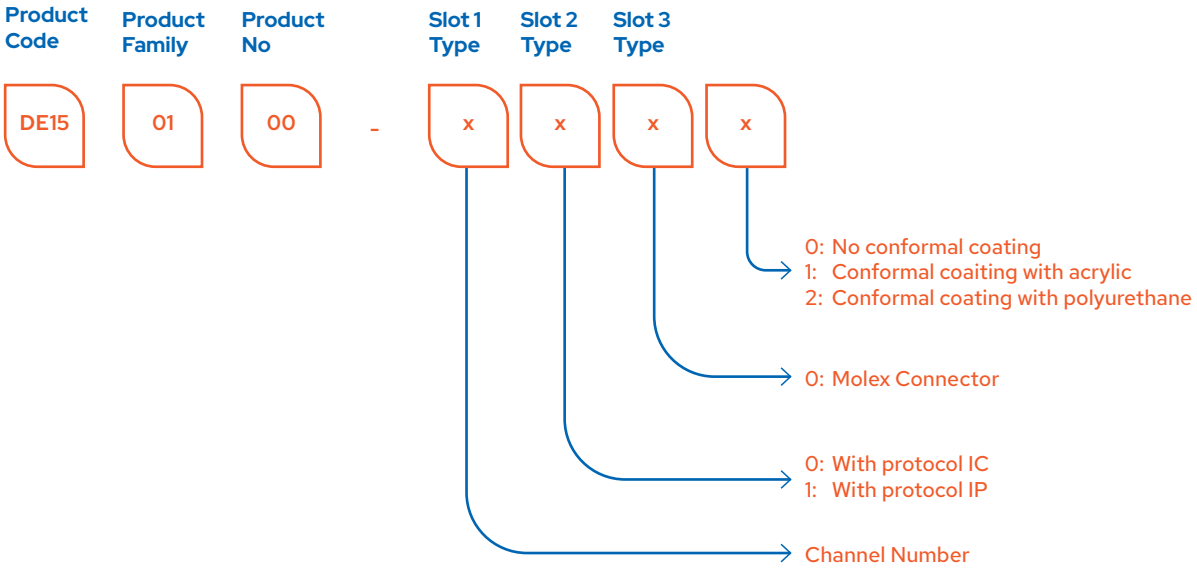
Table 5: PCIe Mini Card System Connector Pinout

Pin	Name	Pin	Name
1	WAKE#	2	+3.3V
3	COEX1 (NC)	4	GND
5	COEX2 (NC)	6	+1.5V (NC)
7	CLKREQ#	8	UIM_PWR (NC)
9	GND	10	UIM_DATA (NC)
11	REFCLK_N	12	UIM_CLK (NC)
13	REFCLK_P	14	UIM_RESET (NC)
15	GND	16	UIM_VPP (NC)
17	RESERVED	18	GND
19	RESERVED	20	W_DISABLE# (NC)
21	GND	22	PERST#
23	PER0_N	24	+3.3V
25	PER0_P	26	GND
27	GND	28	+1.5V (NC)
29	GND	30	SMB_CLK
31	PET0_N	32	SMB_DATA
33	PET0_P	34	GND
35	GND	36	USB_D_N (NC)
37	GND	38	USB_D_P (NC)
39	+3.3V	40	GND
41	+3.3V	42	LED_WWAN# (NC)
43	GND	44	LED_WLAN# (NC)
45	RESERVED	46	LED_WPAN# (NC)
47	RESERVED	48	+1.5V (NC)
49	RESERVED	50	GND
51	RESERVED	52	+3.3V

4. Ordering Information

Table 6: Ordering Information Table

Product Code	Description
DE150100-2000	mPCIe MIL-STD-1553 Module 2 CH With Protocol IC Molex
DE150100-2001	mPCIe MIL-STD-1553 Module 2 CH With Protocol IC Molex Conf ACR
DE150100-2002	mPCIe MIL-STD-1553 Module 2 CH With Protocol IC Molex Conf PU
DE150100-2100	mPCIe MIL-STD-1553 Module 2 CH With Protocol IP Molex
DE150100-2101	mPCIe MIL-STD-1553 Module 2 CH With Protocol IP Molex Conf ACR
DE150100-2102	mPCIe MIL-STD-1553 Module 2 CH With Protocol IP Molex Conf PU
DE150100-1000	mPCIe MIL-STD-1553 Module 1 CH With Protocol IC Molex
DE150100-1001	mPCIe MIL-STD-1553 Module 1 CH With Protocol IC Molex Conf ACR
DE150100-1002	mPCIe MIL-STD-1553 Module 1 CH With Protocol IC Molex Conf PU
DE150100-1100	mPCIe MIL-STD-1553 Module 1 CH With Protocol IP Molex
DE150100-1101	mPCIe MIL-STD-1553 Module 1 CH With Protocol IP Molex Conf ACR
DE150100-1102	mPCIe MIL-STD-1553 Module 1 CH With Protocol IP Molex Conf PU



5. Safety Guidelines

The DE150100 shall not be operated in any manner not specified in this document. Misuse of the product may result in a hazard. Safety protection features may be compromised if the product is damaged. In the event of damage, the product shall be returned for repair.

6. Compatibility Guidelines

This product has been tested and found to comply with the applicable regulatory requirements and limits for electromagnetic compatibility (EMC). These requirements and limits are intended to provide reasonable protection against harmful interference when the product is operated within the specified electromagnetic environment.

This product is intended for use in industrial locations. However, harmful interference may occur in certain installations if the product is connected to peripheral devices or test objects, or if it is used in residential or commercial areas. To minimize interference with radio and television reception and to prevent unacceptable performance degradation, the product shall be installed and operated in strict accordance with the instructions specified in the product documentation.

Any changes or modifications to the product not expressly approved by DEICO may void the user's authority to operate the equipment under local regulatory rules.

To ensure the specified EMC performance, the product shall be operated only with shielded cables and accessories.

To ensure the specified EMC performance, the length of any cable attached to the front connectors shall not exceed 3 m (10 ft.).