Connector Guide for PIB modules

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Intended audience

Hardware developers who plan to design a custom PIB module for use with PCIS3Base or PCIeV4Base boards.

Introduction

With PCIS3Base boards PIB module slot was introduced, which enabled users to design custom PCI cards by simply developing a user specific IO- module to be plugged onto PCIS3Base. With the introduction of PCIeV4Base it even became possible to use the very same PIB module to develop a similar card with PCIe interface. With newer releases of PIB64IO boards connectors from Seltronics (PL169-35-100-G) had to be replaced with compatible ones from **SAMTEC (TFM-150-02-SDA)**. However, the SAMTEC connectors show a different numbering than used in PCIS3Base or PCIeV4Base documentation. Additionally the SAMTEC connectors incorporate inverse-polarity protection which should be taken into account to guarantee that custom boards stay compatible with upcoming releases of PCIS3Base or PCIeV4Base boards.

Pin-out FPGA connector

PIB IO numbering vs. SAMTEC TFM-150-02-SDA numbering					
PIB number	**SAMTEC pin number**	**PIB Signal name**	**PIB number**	**SAMTEC pin number**	**PIB Signal name**
1	**99**	PIB_IO 0	**100**	**100**	PIB_IO 92
2	**97**	PIB_IO 1	**99**	**98**	PIB_IO 91
3	**95**	PIB_IO 2	**98**	**96**	PIB_IO 90
4	**93**	**GND**	**97**	**94**	PIB_IO 89
5	**91**	PIB_IO 3	**96**	**92**	PIB_IO 88
6	**89**	PIB_IO 4	**95**	**90**	PIB_IO 87
7	**87**	PIB_IO 5	**94**	**88**	PIB_IO 86
8	**85**	PIB_IO 6	**93**	**86**	PIB_IO 85
9	**83**	PIB_IO 7	**92**	**84**	PIB_IO 84
10	**81**	PIB_IO 8	**91**	**82**	PIB_IO 83
11	**79**	PIB_IO 9	**90**	**80**	PIB_IO 82
12	**77**	PIB_IO 10	**89**	**78**	PIB_IO 81
13	**75**	PIB_IO 11	**88**	**76**	PIB_IO 80
14	**73**	PIB_IO 12	**87**	**74**	PIB_IO 79
15	**71**	PIB_IO 13	**86**	**72**	PIB_IO 78
16	**69**	PIB_IO 14	**85**	**70**	PIB_IO 77
17	**67**	PIB_IO 15	**84**	**68**	PIB_IO 76
18	**65**	PIB_IO 16	**83**	**66**	PIB_IO 75
19	**63**	PIB_IO 17	**82**	**64**	PIB_IO 74
20	**61**	PIB_IO 18	**81**	**62**	PIB_IO 73
21	**59**	PIB_IO 19	**80**	**60**	PIB_IO 72
22	**57**	PIB_IO 20	**79**	**58**	PIB_IO 71
23	**55**	**GND**	**78**	**56**	PIB_IO 70
24	**53**	PIB_IO 21	**77**	**54**	PIB_IO 69
25	**51**	PIB_IO 22	**76**	**52**	PIB_IO 68
26	**49**	PIB_IO 23	**75**	**50**	PIB_IO 67
27	**47**	PIB_IO 24	**74**	**48**	PIB_IO 66
28	**45**	PIB_IO 25	**73**	**46**	PIB_IO 65
29	**43**	PIB_IO 26	**72**	**44**	PIB_IO 64
30	**41**	PIB_IO 27	**71**	**42**	PIB_IO 63

PIB IO numbering vs. SAMTEC TFM-150-02-SDA numbering					
PIB number	**SAMTEC pin number**	**PIB Signal name**	**PIB number**	**SAMTEC pin number**	**PIB Signal name**
31	**39**	PIB_IO 28	**70**	**40**	PIB_IO 62
32	**37**	PIB_IO 29	**69**	**38**	PIB_IO 61
33	**35**	PIB_IO 30	**68**	**36**	PIB_IO 60
34	**33**	PIB_IO 31	**67**	**34**	PIB_IO 59
35	**31**	PIB_IO 32	**66**	**32**	PIB_IO 58
36	**29**	PIB_IO 33	**65**	**30**	PIB_IO 57
37	**27**	PIB_IO 34	**64**	**28**	PIB_IO 56
38	**25**	PIB_IO 35	**63**	**26**	PIB_IO 55
39	**23**	PIB_IO 36	**62**	**24**	PIB_IO 54
40	**21**	PIB_IO 37	**61**	**22**	PIB_IO 53
41	**19**	PIB_IO 38	**60**	**20**	PIB_IO 52
42	**17**	PIB_IO 39	**59**	**18**	PIB_IO 51
43	**15**	PIB_IO 40	**58**	**16**	PIB_IO 50
44	**13**	PIBCLK (50MHz)	**57**	**14**	PIB_IO 49
45	**11**	**GND**	**56**	**12**	PIB_IO 48
46	**9**	PIB_IO 41	**55**	**10**	PIB_IO 47
47	**7**	PIB_IO 42	**54**	**8**	PIB_IO 46
48	**5**	**+3,3 Volt**	**53**	**6**	PIB_IO 45
49	**3**	**+3,3 Volt**	**52**	**4**	PIB_IO 44
50	**1**	**+3,3 Volt**	**51**	**2**	PIB_IO 43

Pin-out HD-Sub connector

78-pin HD-Sub PIB numbering vs. SAMTEC TFM-150-2-SDA numbering					
PIB number	**SAMTEC pin number**	**HD-Sub**	**PIB number**	**SAMTEC pin number**	**HD-Sub**
1	**99**	**GND**	**100**	**100**	**GND**
2	**97**	**GND**	**99**	**98**	**GND**
3	**95**	**GND**	**98**	**96**	**GND**
4	**93**	HD-Sub Pin 39	**97**	**94**	HD-Sub Pin 59
5	**91**	HD-Sub Pin 20	**96**	**92**	HD-Sub Pin 78
6	**89**	HD-Sub Pin 38	**95**	**90**	HD-Sub Pin 58
7	**87**	HD-Sub Pin 19	**94**	**88**	HD-Sub Pin 77
8	**85**	HD-Sub Pin 37	**93**	**86**	HD-Sub Pin 57
9	**83**	HD-Sub Pin 18	**92**	**84**	HD-Sub Pin 76
10	**81**	HD-Sub Pin 36	**91**	**82**	HD-Sub Pin 56
11	**79**	HD-Sub Pin 17	**90**	**80**	HD-Sub Pin 75
12	**77**	HD-Sub Pin 35	**89**	**78**	HD-Sub Pin 55
13	**75**	HD-Sub Pin 16	**88**	**76**	HD-Sub Pin 74
14	**73**	HD-Sub Pin 34	**87**	**74**	HD-Sub Pin 54
15	**71**	HD-Sub Pin 15	**86**	**72**	HD-Sub Pin 73
16	**69**	HD-Sub Pin 33	**85**	**70**	HD-Sub Pin 53
17	**67**	HD-Sub Pin 14	**84**	**68**	HD-Sub Pin 72
18	**65**	HD-Sub Pin 32	**83**	**66**	HD-Sub Pin 52
19	**63**	HD-Sub Pin 13	**82**	**64**	HD-Sub Pin 71
20	**61**	HD-Sub Pin 12	**81**	**62**	HD-Sub Pin 51
21	**59**	HD-Sub Pin 31	**80**	**60**	HD-Sub Pin 70
22	**57**	HD-Sub Pin 11	**79**	**58**	HD-Sub Pin 50
23	**55**	HD-Sub Pin 30	**78**	**56**	HD-Sub Pin 69
24	**53**	HD-Sub Pin 10	**77**	**54**	HD-Sub Pin 68
25	**51**	HD-Sub Pin 9	**76**	**52**	HD-Sub Pin 67
26	**49**	HD-Sub Pin 8	**75**	**50**	HD-Sub Pin 66
27	**47**	HD-Sub Pin 7	**74**	**48**	HD-Sub Pin 65
28	**45**	HD-Sub Pin 6	**73**	**46**	HD-Sub Pin 64
29	**43**	HD-Sub Pin 5	**72**	**44**	HD-Sub Pin 63
30	**41**	HD-Sub Pin 4	**71**	**42**	HD-Sub Pin 62

78-pin HD-Sub PIB numbering vs. SAMTEC TFM-150-2-SDA numbering					
PIB number	**SAMTEC pin number**	**HD-Sub**	**PIB number**	**SAMTEC pin number**	**HD-Sub**
31	**39**	HD-Sub Pin 3	**70**	**40**	HD-Sub Pin 61
32	**37**	HD-Sub Pin 2	**69**	**38**	HD-Sub Pin 60
33	**35**	HD-Sub Pin 29	**68**	**36**	HD-Sub Pin 49
34	**33**	HD-Sub Pin 28	**67**	**34**	HD-Sub Pin 48
35	**31**	HD-Sub Pin 27	**66**	**32**	HD-Sub Pin 47
36	**29**	HD-Sub Pin 26	**65**	**30**	HD-Sub Pin 46
37	**27**	HD-Sub Pin 25	**64**	**28**	HD-Sub Pin 45
38	**25**	HD-Sub Pin 24	**63**	**26**	HD-Sub Pin 44
39	**23**	HD-Sub Pin 23	**62**	**24**	HD-Sub Pin 43
40	**21**	HD-Sub Pin 22	**61**	**22**	HD-Sub Pin 42
41	**19**	HD-Sub Pin 21	**60**	**20**	HD-Sub Pin 41
42	**17**	**GND**	**59**	**18**	**GND**
43	**15**	**GND**	**58**	**16**	**GND**
44	**13**	**GND**	**57**	**14**	**GND**
45	**11**	**+5 Volt**	**56**	**12**	**+5 Volt**
46	**9**	**+5 Volt**	**55**	**10**	**+5 Volt**
47	**7**	**+5 Volt**	**54**	**8**	**+5 Volt**
48	**5**	**+12 Volt**	**53**	**6**	**+12 Volt**
49	**3**	**+12 Volt**	**52**	**4**	**+12 Volt**
50	**1**	**+12 Volt**	**51**	**2**	**+12 Volt**

Connector positioning

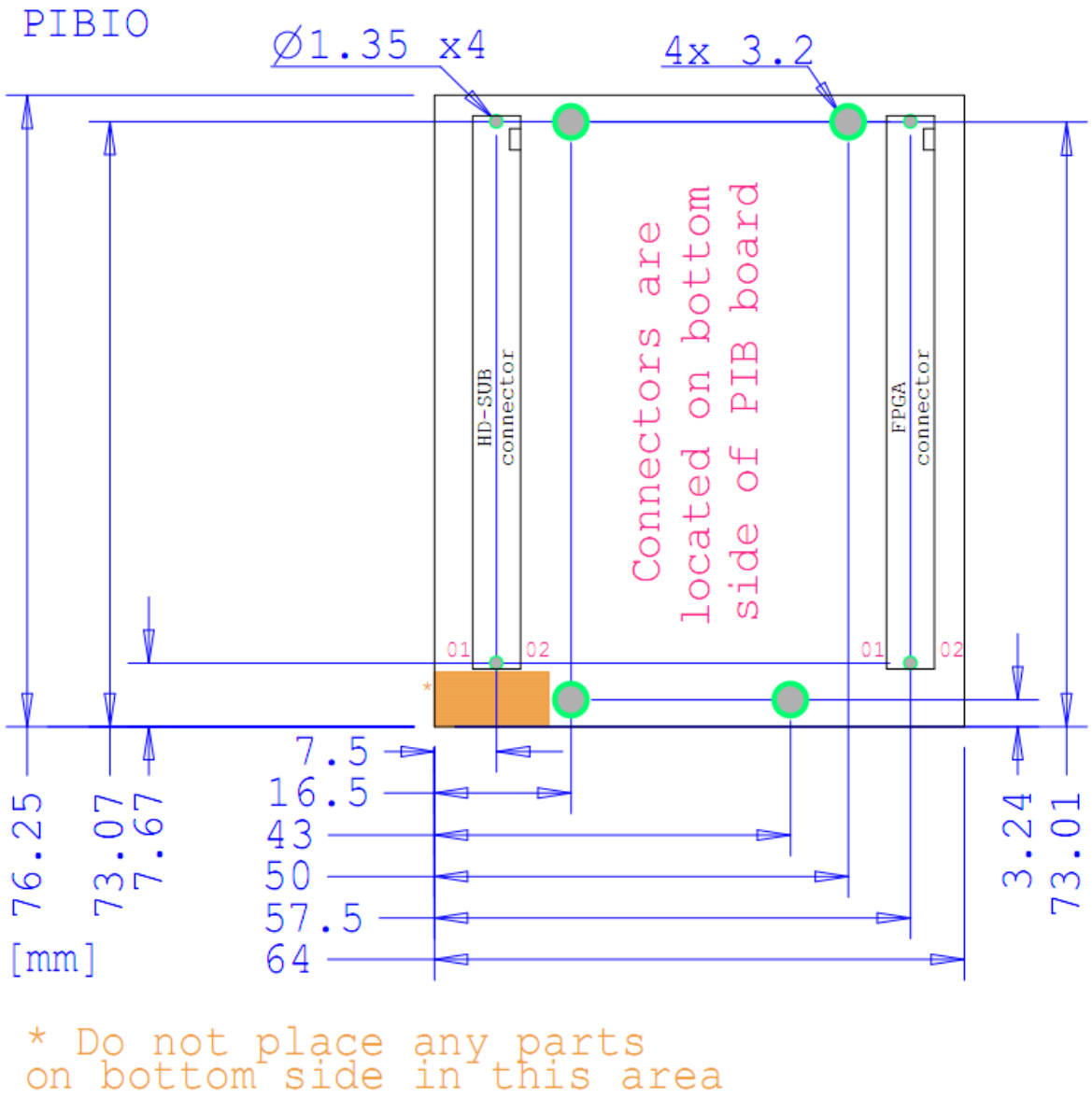

Figure 1: PIB IO - Top view

Shown pin-numbers are for SAMTEC TFM-150-02-SDA connectors