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Mixed Signal Daughter Card

User's Guide

Microsemi

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Introduction

The Mixed Signal Daughter Card is designed for connection to the mixed signal header on the SmartFusion® Evaluation Kit (A2F-EVAL-KIT) or the SmartFusion Development Kit (A2F500-DEV-KIT). The board includes test points for the signals driven by the mixed signal header and also has a 100 mil header that can be used to wire wrap or solder signals directly.

The board comes with rubber feet attached for use with the evaluation kit. If the board is being used with the development kit, the standoffs supplied in the box can be attached to match board height.

Features

The Mixed Signal Daughter Card features:

- Test points for signal probing
- Mixed signal header for daughter card support
- 100 mil header for wire-wrapped or soldered signals

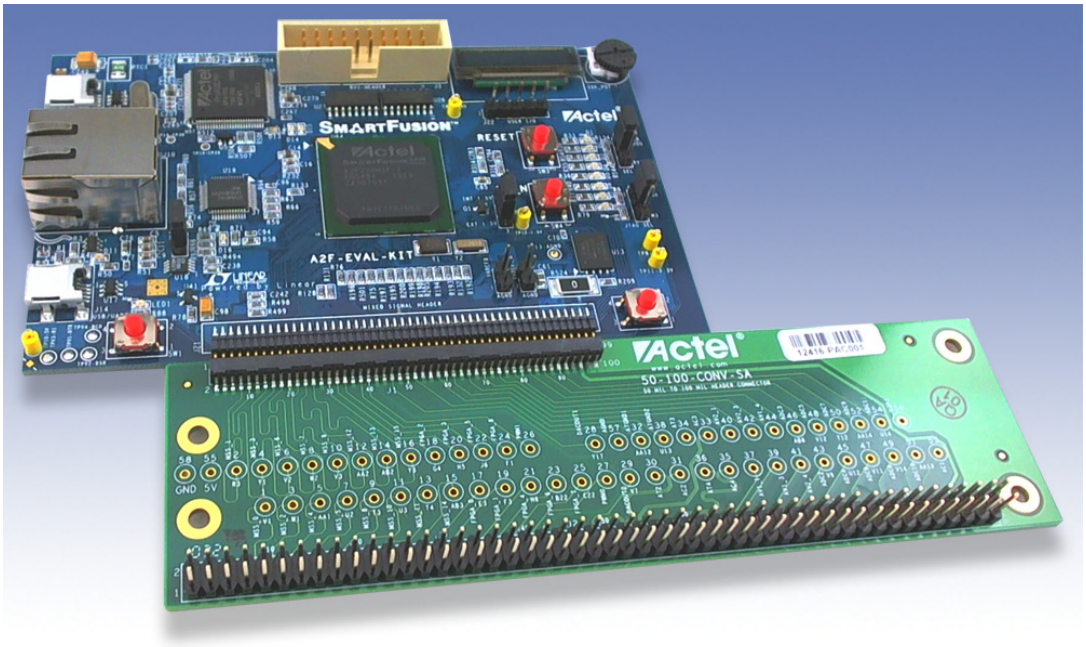

***Figure 1* • Mixed Signal Daughter Card**

Contents

The contents of the Mixed Signal Daughter Card are listed in Table 1.

***Table 1* • Contents**

Quantity	Description
1	50-100-CONV-SA mixed signal daughter card
4	1/2" plastic standoffs
4	Plastic screws (for 1/2" plastic standoffs)

Mixed Signal Connector

The mixed signal connector is shown in Figure 2.

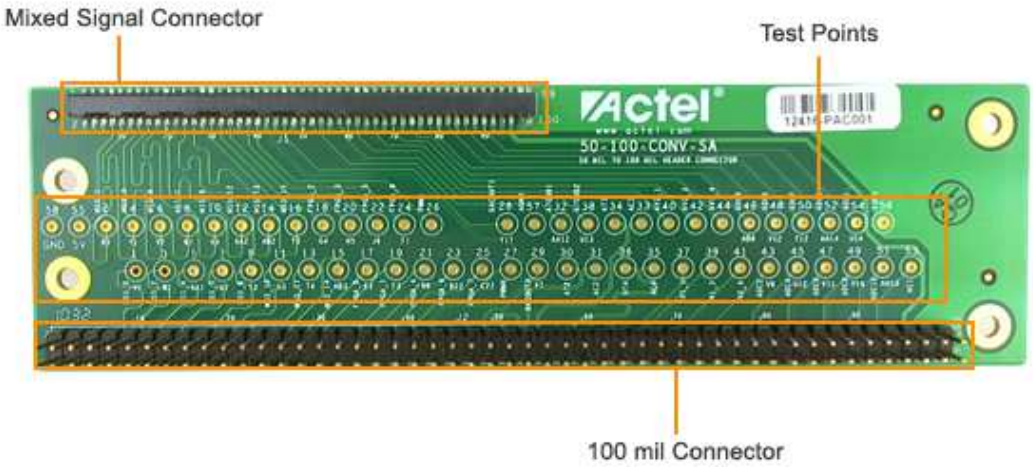

***Figure 2* • Mixed Signal Connector**

1 – Test Points

Test Point Signals

The test point signals are listed in Table 1-1.

***Table 1-1* • Test Point Signals for Mixed Signal Daughter Card 50-100-CONV-SA**

Test Points	Signal
TP1	MSS_GP_IO_0
TP2	MSS_GP_IO_1
TP3	MSS_GP_IO_2
TP4	MSS_GP_IO_3
TP5	MSS_GP_IO_4
TP6	MSS_GP_IO_5
TP7	MSS_GP_IO_6
TP8	MSS_GP_IO_7
TP9	MSS_GP_IO_8
TP10	MSS_GP_IO_9
TP11	MSS_GP_IO_10
TP12	MSS_GP_IO_12
TP13	MSS_GP_IO_11
TP14	MSS_GP_IO_13
TP15	MSS_GP_IO_14
TP16	MSS_GP_IO_15
TP17	F2-200-IO_0
TP18	F2-200-IO_2
TP19	F2-200-IO_1
TP20	F2-200-IO_3
TP21	F2-200-IO_4
TP22	F2-200-IO_5
TP23	F2-200-IO_6
TP24	F2-200-IO_8
TP25	F2-200-IO_7
TP26	PWM1
TP27	PWM0
TP28	DACOUT1

***Table 1-1* • Test Point Signals for Mixed Signal Daughter Card 50-100-CONV-SA**

Test Points	Signal
TP29	DACOUT0
TP30	AT2
TP31	AC2
TP32	ATGND1
TP33	AC3
TP34	AT3
TP35	AC4
TP36	AT4
TP37	AV1_1
TP38	ATGND_2
TP39	AV1_3
TP40	AV2_1
TP41	AV2_4
TP42	AV2_3
TP43	ADC2
TP44	AV1_4
TP45	ADC4
TP46	ADC3
TP47	ADC6
TP48	ADC5
TP49	ADC8
TP50	ADC7
TP51	ADC10
TP52	ADC9
TP53	AC1
TP54	ADC11
TP55	VEX_5V
TP56	V3P3
TP57	GND
TP58	GND

***Table 1-2* • Connections for Mixed Signal Daughter Card 50-100-CONV-SA and A2F-DEV-KIT/ A2F-EVAL-KIT**

J1 Pin Number	J2 Pin Number	Signal Name	A2F-DEV-KIT/A2F500-DEV-KIT	A2F-EVAL-KIT
1	1	VEX_5V	5V	5V
2	2	VEX_5V	5V	5V
3	3	VEX_5V	5V	5V
4	4	VEX_5V	5V	5V
97	97	V3P3	3.3V	3.3V
98	98	V3P3	3.3V	3.3V
99	99	V3P3	3.3V	3.3V
100	100	V3P3	3.3V	3.3V
5	5	DGND	Digital GND	Digital GND
6	6	DGND	Digital GND	Digital GND
12	12	DGND	Digital GND	Digital GND
15	15	DGND	Digital GND	Digital GND
20	20	DGND	Digital GND	Digital GND
23	23	DGND	Digital GND	Digital GND
28	28	DGND	Digital GND	Digital GND
31	31	DGND	Digital GND	Digital GND
36	36	DGND	Digital GND	Digital GND
41	41	DGND	Digital GND	Digital GND
42	42	DGND	Digital GND	Digital GND
95	95	DGND	Digital GND	Digital GND
96	96	DGND	Digital GND	Digital GND
43	43	AGND	Analog GND	Analog GND
44	44	AGND	Analog GND	Analog GND
47	47	AGND	Analog GND	Analog GND
48	48	AGND	Analog GND	Analog GND
51	51	AGND	Analog GND	Analog GND
55	55	AGND	Analog GND	Analog GND
56	56	AGND	Analog GND	Analog GND
59	59	AGND	Analog GND	Analog GND
63	63	AGND	Analog GND	Analog GND
64	64	AGND	Analog GND	Analog GND
67	67	AGND	Analog GND	Analog GND
68	68	AGND	Analog GND	Analog GND

Table 1-2 • Connections for Mixed Signal Daughter Card 50-100-CONV-SA and A2F-DEV-KIT/ A2F-EVAL-KIT

J1 Pin Number	J2 Pin Number	Signal Name	A2F-DEV-KIT/A2F500-DEV-KIT	A2F-EVAL-KIT
71	71	AGND	Analog GND	Analog GND
72	72	AGND	Analog GND	Analog GND
75	75	AGND	Analog GND	Analog GND
76	76	AGND	Analog GND	Analog GND
79	79	AGND	Analog GND	Analog GND
80	80	AGND	Analog GND	Analog GND
83	83	AGND	Analog GND	Analog GND
84	84	AGND	Analog GND	Analog GND
87	87	AGND	Analog GND	Analog GND
88	88	AGND	Analog GND	Analog GND
92	92	AGND	Analog GND	Analog GND
93	93	AGND	Analog GND	Analog GND
94	94	AGND	Analog GND	Analog GND

Table 1-3 • Connections for Mixed Signal Daughter Card 50-100-CONV-SA and A2F-DEV-KIT/ A2F-EVAL-KIT

J1	J2	Signal Name	A2F-DEV-KIT/A2F500-DEV-KIT-A2F500 Pin Number	A2F-EVAL-KIT A2F200 Pin Number
7	7	MSS_GP_IO_0	V1	V1
8	8	MSS_GP_IO_1	R3	R3
9	9	MSS_GP_IO_2	W1	W1
10	10	MSS_GP_IO_3	Y1	Y1
11	11	MSS_GP_IO_4	AA1	AA1
15	15	MSS_GP_IO_5	U2	U2
14	14	MSS_GP_IO_6	V2	V2
16	16	MSS_GP_IO_7	W2	W2
17	17	MSS_GP_IO_8	T3	T3
18	18	MSS_GP_IO_9	V3	V3
19	19	MSS_GP_IO_10	U3	U3
21	21	MSS_GP_IO_11	T4	T4
22	22	MSS_GP_IO_12	AA2	AA2
24	24	MSS_GP_IO_13	AB2	AB2
25	25	MSS_GP_IO_14	AB3	AB3
26	26	MSS_GP_IO_15	Y3	Y3
27	27	F2-200-IO_0	E3	E3

***Table 1-3* • Connections for Mixed Signal Daughter Card 50-100-CONV-SA and A2F-DEV-KIT/ A2F-EVAL-KIT**

J1	J2	Signal Name	A2F-DEV-KIT/A2F500-DEV-KIT-A2F500 Pin Number	A2F-EVAL-KIT A2F200 Pin Number
29	29	F2-200-IO_1	F3	F3
30	30	F2-200-IO_2	G4	G4
32	32	F2-200-IO_3	H5	H5
33	33	F2-200-IO_4	H6	H6
34	34	F2-200-IO_5	J6	J6
35	35	F2-200-IO_6	B22	B22
37	37	F2-200-IO_7	C22	C22
38	38	F2-200-IO_8	F1	F1
39	39	PWM0	E22	E22
40	40	PWM1	F22	F22
45	45	DACOUT0	V7	V7
46	46	DACOUT1	Y17	Y17
49	49	AC2	AB13	AB13
50	50	AT2	AB12	AB12
53	53	AC3	AA11	AA11
54	54	AT3	Y12	Y12
57	57	AC4	CM4	-
58	58	AT4	T13	-
91	91	AC1	U9	U9
52	52	ATGND1	AA12	AA12
60	60	ATGND2	U13	-
61	61	AV1_1	W9	W9
62	62	AV2_1	AB7	AB7
65	65	AV1_3	W12	W12
66	66	AV2_3	Y11	Y11
70	70	AV1_4	Y13	-
69	69	AV2_4	W14	-
73	73	ADC2	V9	V9
74	74	ADC3	ADC3	AB8
77	77	ADC4	ADC4	U12
78	78	ADC5	V12	V12
81	81	ADC6	V11	V11

***Table 1-3* • Connections for Mixed Signal Daughter Card 50-100-CONV-SA and A2F-DEV-KIT/ A2F-EVAL-KIT**

J1	J2	Signal Name	A2F-DEV-KIT/A2F500-DEV-KIT-A2F500 Pin Number	A2F-EVAL-KIT A2F200 Pin Number
82	82	ADC7	T12	T12
85	85	ADC8	V14	-
86	86	ADC9	AA14	-
89	89	ADC10	AA13	-
90	90	ADC11	U14	-

2 – Signal Connectors

Mixed Signal Connector

The mixed signal connector connects directly to the SmartFusion Evaluation Kit or Development Kit mixed signal header.

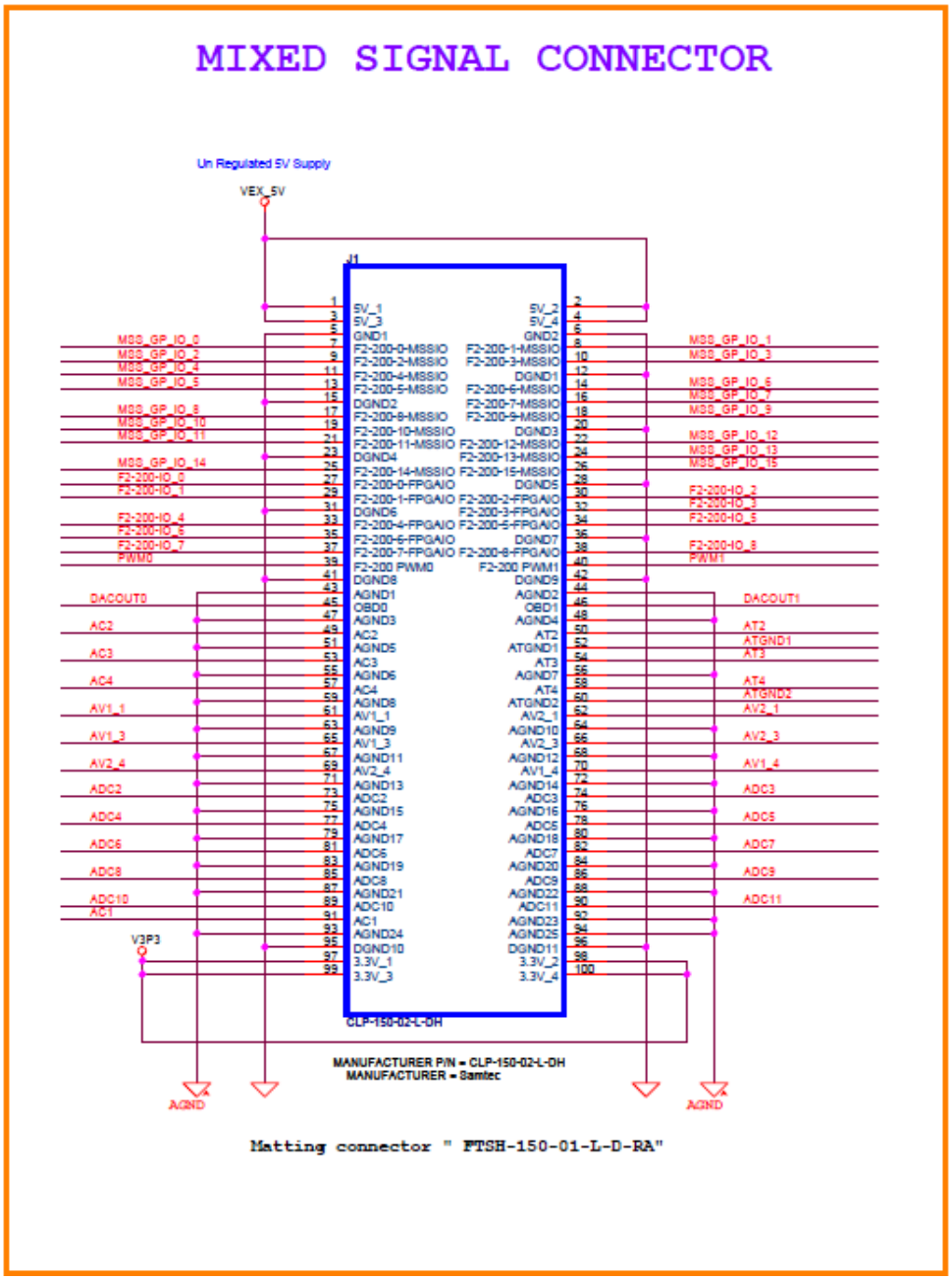

***Figure 2-1* • Mixed Signal Header**

Break Out Board – Signal Connector

The second connector can be used to probe signals or build add on connectors. It does not connect to any other hardware specific to Microsemi.

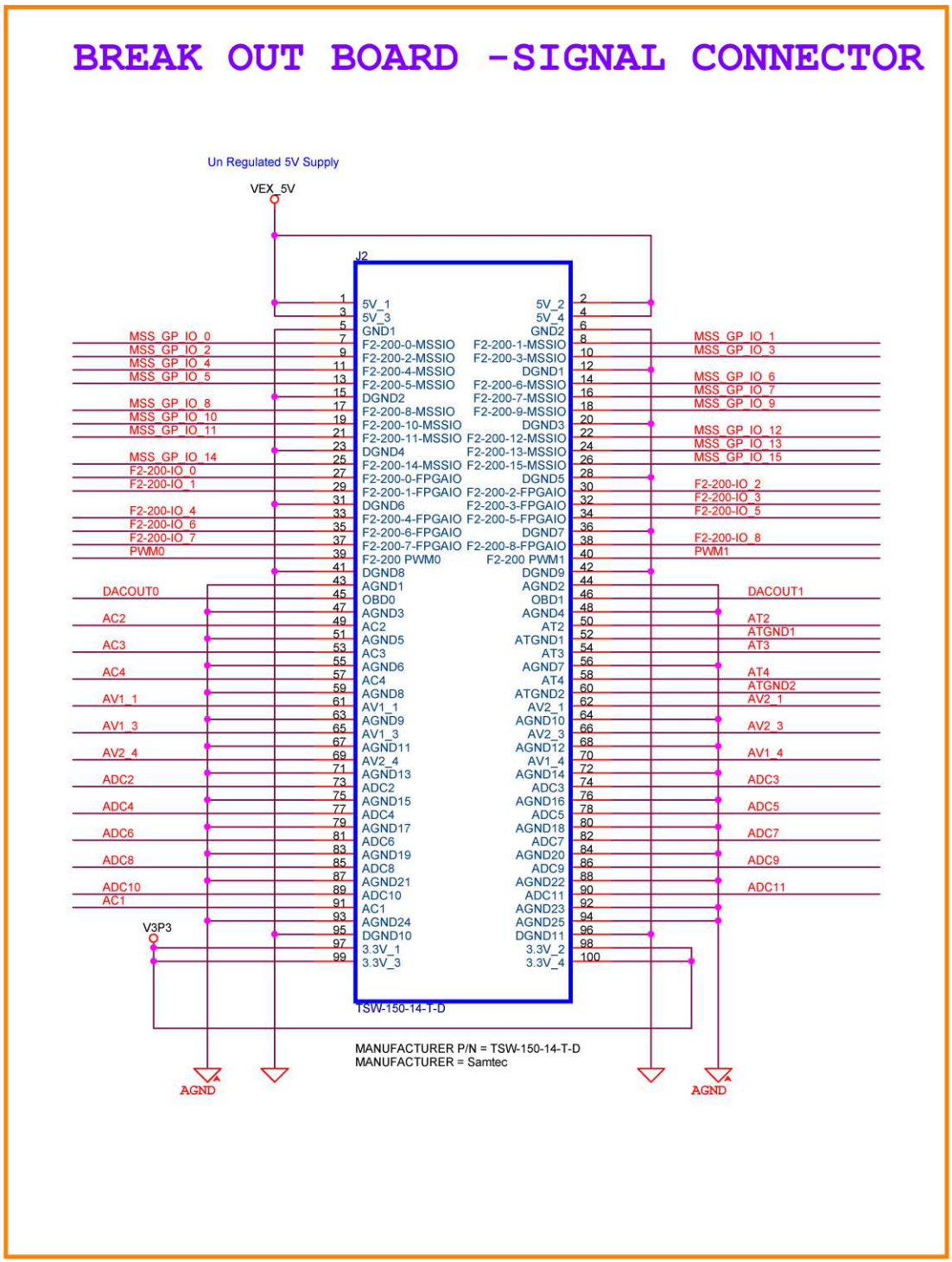

***Figure 2-2* • Break-Out Board – Signal Connector**

Test Points – Signal

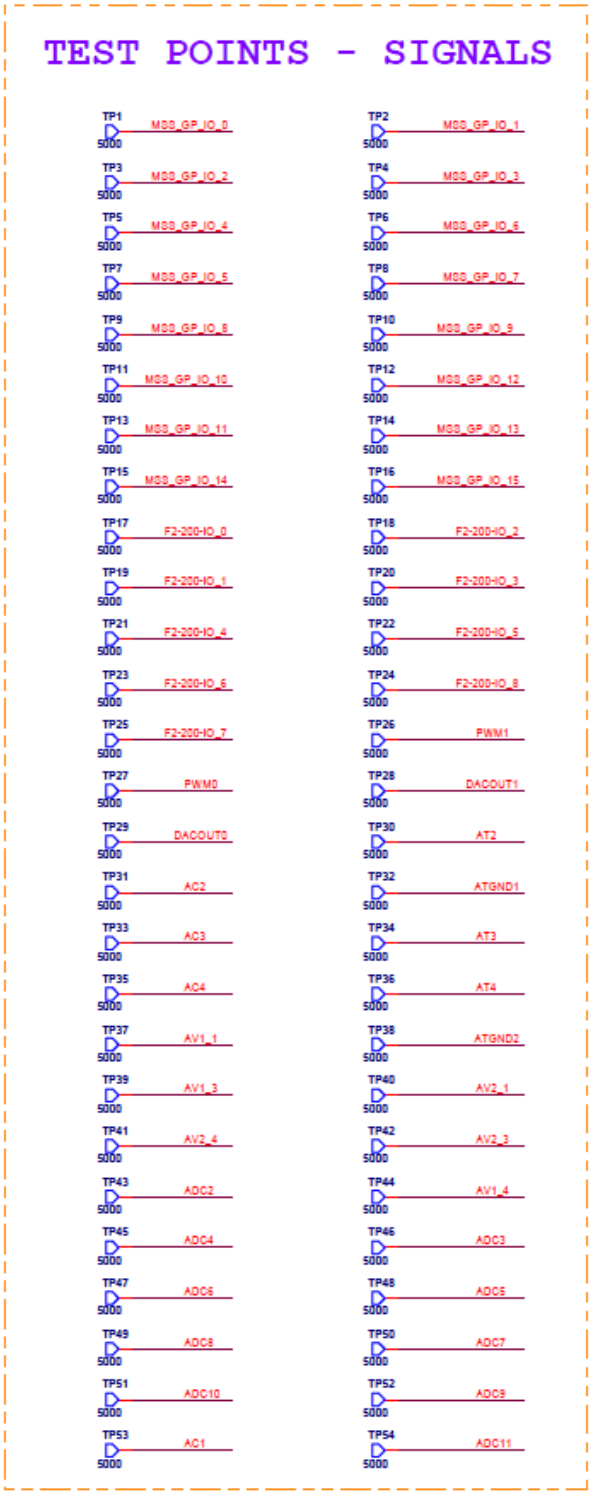

***Figure 2-3* • Test Point – Signals**

Test Points – Power

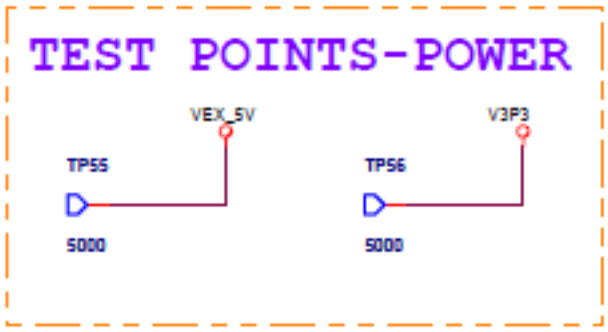

Figure 2-4 **• Test Points – Power**

Test Points – Ground

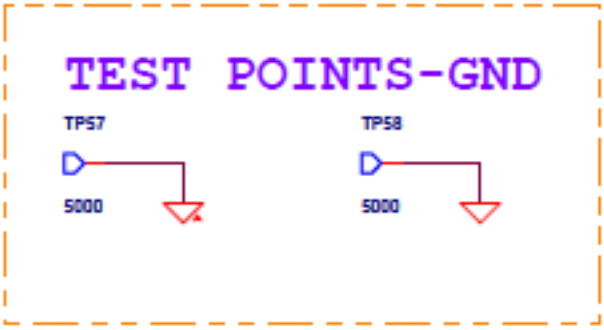

Figure 2-5 **• Test Points – Ground**

3 – Manufacturing Test Flow

The manufacturing test flow is explained in the following steps:

1. Plug the J1 Header of the 50-100-CONV-SA Header into the J21 Header of A2F-DEV-KIT.
2. Ensure a good contact is made and the connector goes all the way in.
3. Plug-in the 5V supply on J1 of the A2F-DEV-KIT.
4. Turn the switch SW6 in the ON position.
5. Ensure that the LED5 lights up. This ensures that no shorts exist on the 50-100-CONV-SA board.

Note: If there is a failure in Step 2 or Step 5, please keep these boards aside and inform Microsemi.

A – Product Support

Microsemi backs its products with various support services including Customer Service, a Customer Technical Support Center, a web site, an FTP site, electronic mail, and worldwide sales offices. This appendix contains information about contacting Microsemi SoC Products Group (formerly Actel) and using these support services.

Customer Service

Contact Customer Service for non-technical product support, such as product pricing, product upgrades, update information, order status, and authorization.

From Northeast and North Central U.S.A., call **650.318.4480**
From Southeast and Southwest U.S.A., call **650. 318.4480**
From South Central U.S.A., call **650.318.4434**
From Northwest U.S.A., call **650.318.4434**
From Canada, call **650.318.4480**
From Europe, call **650.318.4252** or **+44 (0) 1276 401 500**
From Japan, call **650.318.4743**
From the rest of the world, call **650.318.4743**
Fax, from anywhere in the world **650.318.8044**

Customer Technical Support Center

Microsemi staffs its Customer Technical Support Center with highly skilled engineers who can help answer your hardware, software, and design questions. The Customer Technical Support Center spends a great deal of time creating application notes and answers to FAQs. So, before you contact us, please visit our online resources. It is very likely we have already answered your questions.

Technical Support

Visit the Customer Support website (www.actel.com/support/search/default.aspx) for more information and support. Many answers available on the searchable web resource include diagrams, illustrations, and links to other resources on the website.

Website

You can browse a variety of technical and non-technical information on the SoC home page, at www.actel.com.

Contacting the Customer Technical Support Center

Highly skilled engineers staff the Technical Support Center from 7:00 a.m. to 6:00 p.m., Pacific Time, Monday through Friday. Several ways of contacting the Center follow:

Email

You can communicate your technical questions to our email address and receive answers back by email, fax, or phone. Also, if you have design problems, you can email your design files to receive assistance. We constantly monitor the email account throughout the day. When sending your request to us, please be sure to include your full name, company name, and your contact information for efficient processing of your request.

The technical support email address is soc_tech@microsemi.com.

Phone

Our Technical Support Center answers all calls. The center retrieves information, such as your name, company name, phone number and your question, and then issues a case number. The Center then forwards the information to a queue where the first available application engineer receives the data and returns your call. The phone hours are from 7:00 a.m. to 6:00 p.m., Pacific Time, Monday through Friday. The Technical Support numbers are:

650.318.4460
800.262.1060

Customers needing assistance outside the US time zones can either contact technical support via email (soc_tech@microsemi.com) or contact a local sales office. Sales office listings can be found on the website at www.actel.com/company/contact/default.aspx.

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