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Revision History

Issue	Changes Made	Date	Initials
0.1	Initial Draft	21/01/2010	AJH

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1 Introduction

The AVXB is a universal bus connection, often connecting to a DSP or FPGA by the means of a high density Samtec connector. This connector accepts a range of modular products, which are mounted above the base board. Utilising the standard AVXB base module, a flexible system can be tailor made by attaching a wide variety of daughter modules, from Dual Video Decoders (AV909) to a High-Speed ADC/DAC Module (AV959).

The AVXB connections are carefully routed to ensure the best signal quality, along with dedicated I2C & clock connections. The AVXB connector is split into three sections, two high-speed data channels A, B and one for control. A separate connector provides power to the plug-in module.

This document describes how the AVXB works and its mechanical and electrical characteristics.

1.1 Key Features

Below are listed the features of the AVXB:

- One control channel port including IC2 and Global clock connections,
- Two data buses,
- A set of power supplies: +3.3, +5 and +12Volts.
- Two-extra mounting holes to hold base and modules together.

1.2 Related Documents

Samtec – QTH Specifications:

http://www.samtec.com/signal_integrity/technical_specifications/overview.asp?series=QTH-DP&menu=Signal_Integrity

Samtec – QSH Specifications:

http://www.samtec.com/signal_integrity/technical_specifications/overview.asp?series=QSH-DP

Samtec – BKS Specifications:

http://www.samtec.com/signal_integrity/technical_specifications/overview.asp?series=BKS

Samtec – BKT Specifications:

http://www.samtec.com/technical_specifications/overview.asp?series=BKT

2 Pinouts

2.1 AVXB Power Connector

AV800 Connector Part No. BKT-133-03-F-V-A

Mating PCB Connector Samtec BKS-133-01-F-V-A

Pin #	Description	Pin #	Description
1	3.3V	2	GND
3	3.3V	4	GND
5	3.3V	6	GND
7	3.3V	8	GND
9	5V	10	GND
11	5V	12	GND
13	5V	14	GND
15	5V	16	GND
17	+12V	18	GND
19	+12V	20	GND
21	-12V ¹	22	GND
23	-12V ¹	24	GND
25	GND	26	ENU0 ¹
27	ENU1 ¹	28	TMS ¹
29	nTRST ¹	30	TCK ¹
31	TDI ¹	32	TDO ¹
33	NC		

Note

1. These connections are not present on the AV800.

2.2 AVXB Interface Connector

AV800 Connector Part No. [Samtec QTH-060-01-F-D-DP-A](#)

Mating Connector Samtec QSH-060-01-D-DP-A

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	AVXB_A00	2	AVXB_A01	3	AVXB_A02	4	AVXB_A03
5	AVXB_A04	6	AVXB_A05	7	AVXB_A06	8	AVXB_A07
9	AVXB_A08	10	AVXB_A09	11	AVXB_A10	12	AVXB_A11
13	AVXB_A12	14	AVXB_A13	15	AVXB_A14	16	AVXB_A15
17	AVXB_A16	18	AVXB_A17	19	AVXB_A18	20	AVXB_A19
21	AVXB_A20	22	AVXB_A21	23	AVXB_A22	24	AVXB_A23
25	AVXB_A24	26	AVXB_A25	27	AVXB_A26	28	AVXB_A27
29	AVXB_A28	30	AVXB_A29	31	AVXB_A30	32	AVXB_A31
33	AVXB_A32	34	AVXB_A33	35	AVXB_A34	36	AVXB_A35
37	AVXB_A36	38	AVXB_A37	39	AVXB_A38	40	AVXB_A39
41	IIC_CLK	42	IIC_DATA	43	AVXB_CTL_D00	44	AVXB_CTL_D01
45	AVXB_CTL_D02	46	AVXB_CTL_D03	47	AVXB_CTL_D04	48	AVXB_CTL_D05
49	NC	50	NC	51	AVXB_CTL_D06	52	AVXB_CTL_D07
53	AVXB_CTL_D08	54	AVXB_CTL_D09	55	AVXB_GCLK_A ²	56	AVXB_CTL_D11
57	AVXB_CTL_D12	58	AVXB_CTL_D13 ³	59	AVXB_GCLK_B ²	60	AVXB_CTL_D15 ³
61	AVXB_CTL_D16	62	AVXB_CTL_D17 ³	63	AVXB_CTL_D18	64	AVXB_CTL_D19 ³
65	AVXB_CTL_D20	66	AVXB_CTL_D21 ³	67	AVXB_CTL_D22	68	AVXB_CTL_D23 ³
69	AVXB_CTL_D24	70	FPGA_VREF ¹	71	FPGA_TCK ¹	72	FPGA_TMS ¹
73	FPGA_TDI ¹	74	FPGA_TDO ¹	75	MSP_VREF ¹	76	MSP_TCK ¹
77	MSP_TMS ¹	78	MSP_TDI ¹	79	MSP_TDO ¹	80	MSP_TRST ¹
81	AVXB_B00	82	AVXB_B01	83	AVXB_B02	84	AVXB_B03
85	AVXB_B04	86	AVXB_B05	87	AVXB_B06	88	AVXB_B07
89	AVXB_B08	90	AVXB_B09	91	AVXB_B10	92	AVXB_B11
93	AVXB_B12	94	AVXB_B13	95	AVXB_B14	96	AVXB_B15
97	AVXB_B16	98	AVXB_B17	99	AVXB_B18	100	AVXB_B19
101	AVXB_B20	102	AVXB_B21	103	AVXB_B22	104	AVXB_B23
105	AVXB_B24	106	AVXB_B25	107	AVXB_B26	108	AVXB_B27
109	AVXB_B28	110	AVXB_B29	111	AVXB_B30	112	AVXB_B31
113	AVXB_B32	114	AVXB_B33	115	AVXB_B34	116	AVXB_B35
117	AVXB_B36	118	AVXB_B37	119	AVXB_B38	120	AVXB_B39

Note

1. These connections are not present on the AV800.
2. Global clock connections on the AV800.
3. R203 on AV800 3 way 0603 sets the voltage for the AVXB Bus Banks either 3v3 (inwards of the PCB) or 2v5.

3 Mechanical Specification

3.1 AVXB Signal/Control

The AVXB connectors used to stack up modules, are manufactured by Samtec.

These have a height of 5mm, 0.5-mm pitch. Both connectors on Main/Base and Daughter modules have 120 pins. The Samtec part numbers are as follows:

- QTH-060-01-F-D-DP-A for the base module.

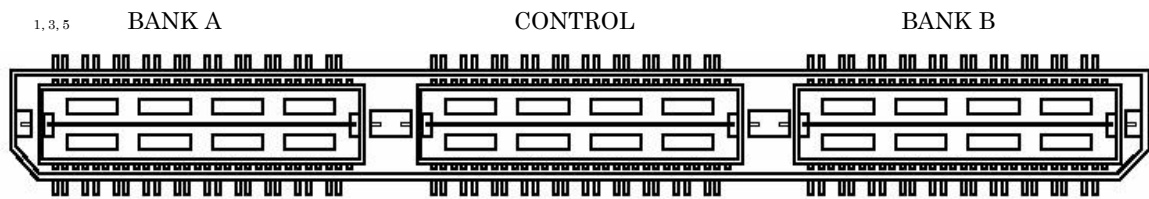


Figure 1 - QTH-060-01-F-D-DP-A - Top View

- QSH-060-03-F-D-DP-A for the plug-in module.

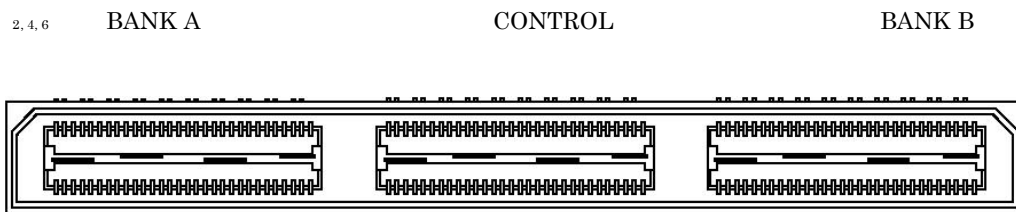


Figure 2 - QSH-060-03-F-D-DP-A - Top View

Each connector are split into three banks, A, B and a control channel. The control channel also includes I2C and global clock connections, please refer to pin-out section for further descriptions.

3.2 AVXB Power

The power connectors, are manufactured by Samtec. These are 5mm in stack height, 1-mm pitch and specially made to carry high currents. Both connectors on main and modular boards have 23 pins. The Samtec part numbers are as follows:

- BKS-133-01-F-V-A for the base board

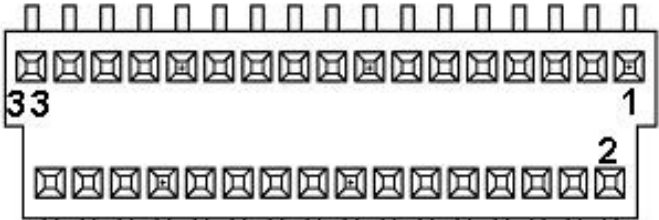


Figure 3 - BKS-133-01-F-V-A – Top View

- BKT-133-03-F-V-A for the module.



Figure 4 - BKT-133-03-F-V-A -Top View

4 Mounting Locations

4.1 Base Board

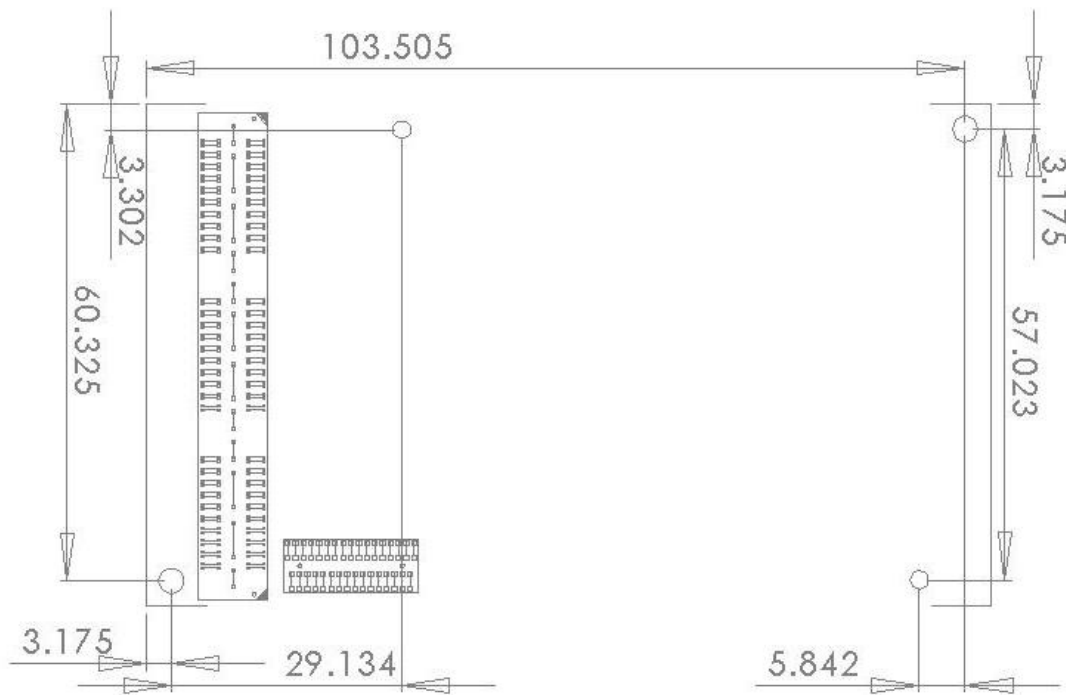


Figure 5 - Mounting Position - Base Board - Top View

4.2 Module

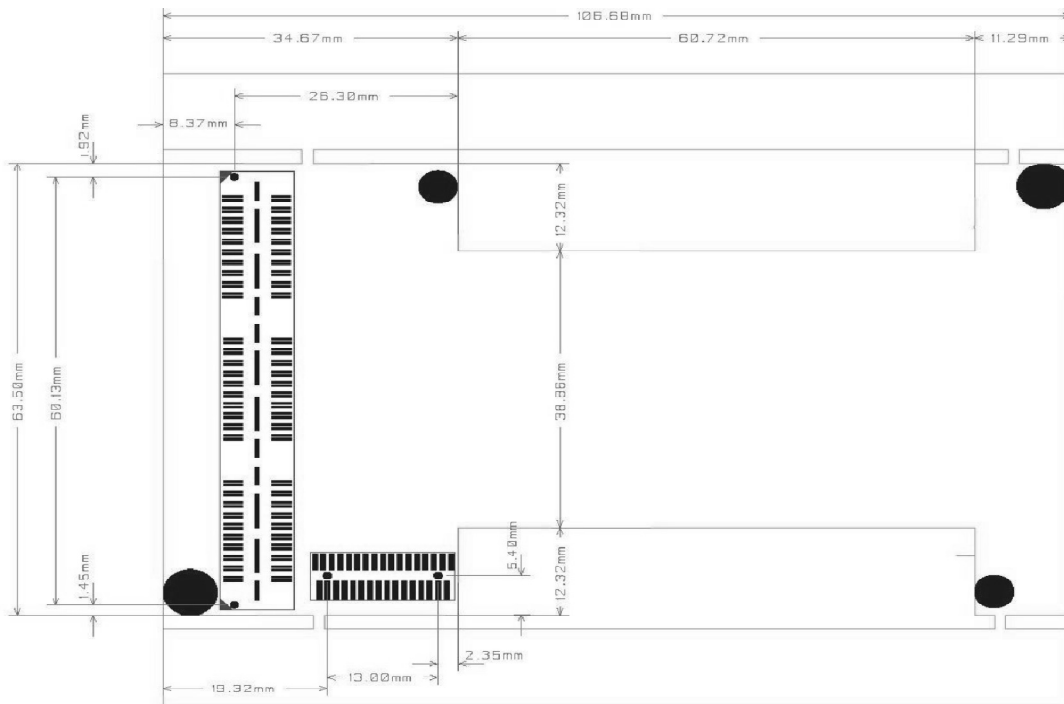


Figure 6 - QTH/BKT Locations - Module - Top View

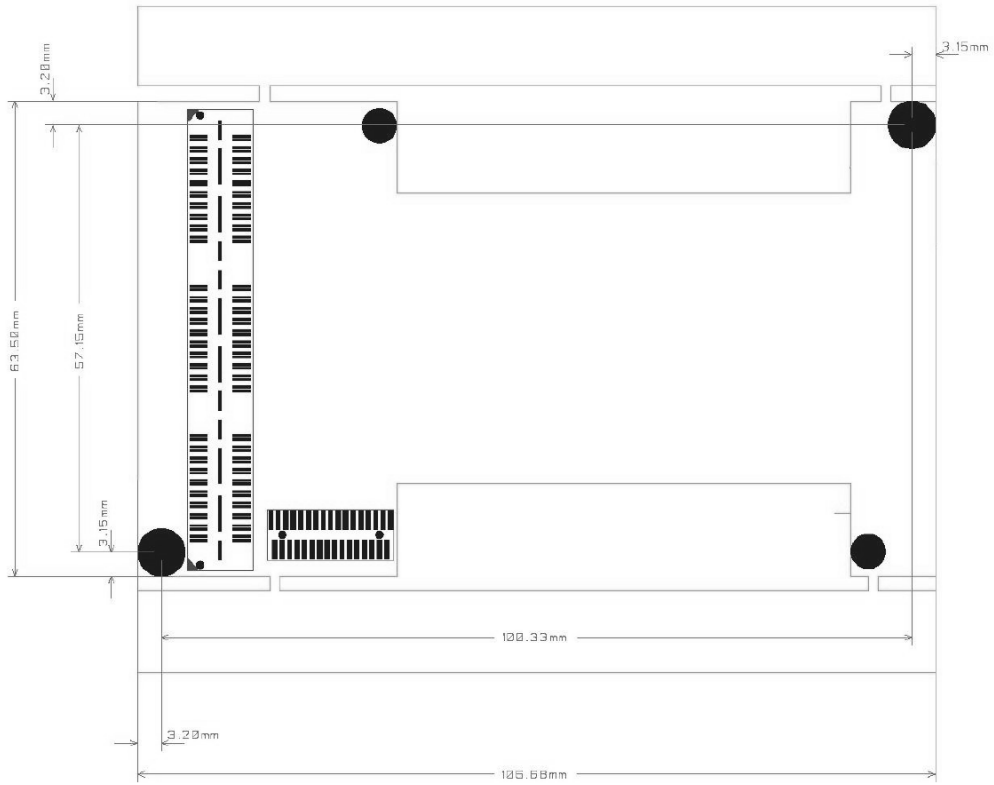


Figure 7 - Mounting Positions - Module - Top View