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# **TB 8307 MIXED-SIGNAL TRANSITION BOARD**

## **USERS MANUAL**

PCB Issue 1

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## Revision History

The following table shows the revision history for this document.

Date	Version	Change Notes
08/11/06	1.0	PCB issue 1
05/01/20	1.1	Change from Hytec to Newwood Solutions for contact details

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## 1. INTRODUCTION

The Hytec TB8307 is a single-width VME64X Transition Board which accepts two 9000 series SBCs. When used for mixed signal applications it allows:-

- Straight-through connections for Hytec/Newwood Solution Industry Pack (IP) carrier board sites A and B
- Signal conditioning in-line with connections to IP sites C and D by means of plug-in signal conditioning board (9000 series SCBs)
- Various SCB options (opto-coupled digital or filtered analogue) mount on pairs of 50-way connectors
- On-board DC-DC converter options supply 9000 series SCBs and external sources (does not supply isolated voltages for the IP cards).
- Signals routed as pairs.
- Power connector supplies +5V to SCB from VME
- Ground discharge limited on insertion

## 2. PRODUCT SPECIFICATIONS

Mechanical:	Standard 6U high VME64X transition board
Operating temp:	0 to 45 deg C ambient
Number of signals:	4 x 50 (2 groups direct, 2 groups conditioned)
SCB Isolation:	100V with respect to VME GND
Power (fused at 3A):	+5V @ 2A typical for 2 off DC-DC converters
Electrostatic discharge:	via 2M2 to chassis ground and VME GND

### 3. Operating Modes

#### 3.1 Configuration

Front panel connectors 1 and 2 are routed straight-through to carrier board IP sites A and B. Front panel connectors 3 and 4 are routed to the 50-way I/O connectors of SCB sites C and D. The opposite sides of the SCB sites each have another 50-way connector which are then routed to carrier board sites C and D via VME backplane connectors P0 and P2. Thus the SCBs form a bridge between each front panel connector and its associated carrier IP site.

The SCB cards which are available are:-

- 9202 Analogue signal conditioning board
- 9301 Isolated x16 Digital Input SCB
- 9303 Isolated x16 Digital Output SCB
- 9304 Straight-through SCB
- 9305 Isolated x8 Digital Input, x8 Digital Output SCB

#### 3.2 Links

Links allow the isolated analogue grounds of each SCB group to be connected to digital (VME) ground.

LK1- SCB site C

LK2- SCB site D

#### 3.3 Excitation

Two DC-DC converter sites are available for SDC8912 DC-DC Converter cards to power SCB sites C and D with isolated +/-12V DC via a 6-way power connector.

#### 3.4 Transition Links

All these links should be set to 1 & 2 for normal operation.

- J1 Set 1 & 2 for normal operation. Set 2 & 3 to disconnect signal and ground input to carrier card.
- J2 Set 1 & 2 for normal operation. Set 2 & 3 to disconnect signal and ground input to carrier card.
- J3 Set 1 & 2 for normal operation. Set 2 & 3 to disconnect signal and ground input to carrier card.

### 4. Front Panel SCSI Connectors

Connectors 1 and 2 are routed directly to carrier board sites A,B

Connectors 3 and 4 are routed via SCB sites C and D to carrier sites C and D

## APPENDIX A

Table of 8307 SCSI to IP Carrier I/O Connections

I/P		I/P SITE TO VME P-					I/P		I/P SITE TO VME P-				
SIG	PIN	A	B	C	D	SCSI	SIG	PIN	A	B	C	D	SCSI
1+	1	2A6	2D4	0A11	0A1	26	1-	2	2C6	2Z5	0B11	0B1	1
2+	3	2A7	2D5	0C11	0C1	27	2-	4	2C7	2D6	0D11	0D1	2
3+	5	2A8	2Z7	0E11	0E1	28	3-	6	2C8	2D7	0A12	0A2	3
4+	7	2A9	2D8	0B12	0B2	29	4-	8	2C9	2Z9	0C12	0C2	4
5+	9	2A10	2D9	0D12	0D2	30	5-	10	2C10	2D10	0E12	0E2	5
6+	11	2A11	2Z11	0A13	0A3	31	6-	12	2C11	2D11	0B13	0B3	6
7+	13	2A12	2D12	0C13	0C3	32	7-	14	2C12	2Z13	0D13	0D3	7
8+	15	2A13	2D13	0E13	0E3	33	8-	16	2C13	2D14	0A14	0A4	8
9+	17	2A14	2Z15	0B14	0B4	34	9-	18	2C14	2D15	0C14	0C4	9
10+	19	2A15	2D16	0D14	0D4	35	10-	20	2C15	2Z17	0E14	0E4	10
11+	21	2A16	2D17	0A15	0A5	36	11-	22	2C16	2D18	0B15	0B5	11
12+	23	2A17	2Z19	0C15	0C5	37	12-	24	2C17	2D19	0D15	0D5	12
13+	25	2A18	2D20	0E15	0E5	38	13-	26	2C18	2Z21	0A16	0A6	13
14+	27	2A19	2D21	0B16	0B6	39	14-	28	2C19	2D22	0C16	0C6	14
15+	29	2A20	2Z23	0D16	0D6	40	15-	30	2C20	2D23	0E16	0E6	15
16+	31	2A21	2D24	0A17	0A7	41	16-	32	2C21	2Z25	0B17	0B7	16
17+	33	2A22	2D25	0C17	0C7	42	17-	34	2C22	2D26	0D17	0D7	17
18+	35	2A23	2Z27	0E17	0E7	43	18-	36	2C23	2D27	0A18	0A8	18
19+	37	2A24	2D28	0B18	0B8	44	19-	38	2C24	2Z29	0C18	0C8	19
20+	39	2A25	2D29	0D18	0D8	45	20-	40	2C25	2D30	0E18	0E8	20
21+	41	2A26	2A1	0A19	0A9	46	21-	42	2C26	2C1	0B19	0B9	21
22+	43	2A27	2A2	0C19	0C9	47	22-	44	2C27	2C2	0D19	0D9	22
23+	45	2A28	2A3	0E19	0E9	48	23-	46	2C28	2C3	2Z1	0A10	23
24+	47	2A29	2A4	2D1	0B10	49	24-	48	2C29	2C4	2D2	0C10	24
25+	49	2A30	2A5	2Z3	0D10	50	25-	50	2C30	2C5	2D3	0E10	25

## APPENDIX B

### Pin Assignments of SCB Connectors

Pin	Signal	Pin	Signal
1	1 +	2	1 -
3	2 +	4	2 -
5	3 +	6	3 -
7	4 +	8	4 -
9	5 +	10	5 -
11	6 +	12	6 -
13	7 +	14	7 -
15	8 +	16	8 -
17	9 +	18	9 -
19	10 +	20	10 -
21	11 +	22	11 -
23	12 +	24	12 -
25	13 +	26	13 -
27	14 +	28	14 -
29	15 +	30	15 -
31	16 +	32	16 -
33	17 +	34	17 -
35	18 +	36	18 -
37	19 +	38	19 -
39	20 +	40	20 -
41	21 +	42	21 -
43	22 +	44	22 -
45	23 +	46	23 -
47	24 +	48	24 -
49	25 +	50	25 -

## APPENDIX C

### SCB Power Connectors SK3&SK4

Pin	Signal
1	+5V(VME)
2	+5V(VME)
3	GND(VME)
4	AGND(ISO)
5	+12V(ISO)
6	-12V(ISO)

### DC-DC Input Power Connectors SKT1&SKT3

Pin	Signal
1	+5V(VME)
2	+5V(VME)
3	NC
4	NC
5	GND (VME)
6	GND (VME)

### DC-DC Output Power Connectors SKT2&SKT4

Pin	Signal
1	+12V(ISO)
2	+12V(ISO)
3	AGND(ISO)
4	AGND(ISO)
5	-12VX
6	-12VX