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HYTEC ELECTRONICS Ltd
HEAD OFFICE: 5 CRADOCK ROAD, READING, BERKS. RG2 0JT, UK
Telephone: +44 (0) 118 9757770 Fax: +44 (0)118 9757566

NORTHERN OFFICE: 64 AMY Street, LEICESTER, LE3 2FB.
Telephone: +44 (0) 116 2630250 Fax: +44 (0)116 2630399

E-mail: sales@hytec-electronics.co.uk

TB8210
64-CHANNEL ANALOGUE INPUT VME64X TRANSITION BOARD

USERS MANUAL

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1. INTRODUCTION

The Hytec TB8202 is a single-width VME64X Transition Board which routes 64 channels of analogue I/O with the following characteristics:-

- 4 groups of 16 analogue channel pairs
- Allows use of PT100 or thermocouple DIN Rail Board (8913) with IP-MADC-8403
- 4 50-waySCSI connectors 1-4 routed to 8002 Carrier Board sites A-D respectively
- 16 channels of differential filters condition 8401/8403 inputs
- Differential or single-ended/pseudo-differential mode selected by jumpers
- Common mode bias resistors for differential inputs
- 4 DC-DC Converter socketed sites allow 5V to +/-12V isolated power for each group
- 4 signal pairs for External Trigger
- 4 signal pairs for External Clock
- Analogue Ground connections
- Ground discharge limited on insertion

2. SPECIFICATION

Mechanical:	Standard 6U high VME64X transition board
Operating temp:	0 to 45 deg C ambient
Number of channels:	64
Input/output voltage range:	0 to +2.5V
Input filter:	1K in each arm with 0.1uF across them.
Common mode resistors:	1M to Agnd from each arm
Three pole jumpers:	Select single inputs from signal to common or Differences between adjacent inputs
Excitation:	Programmable 0-1mA supplied by 8403
Isolated digital output:	/CALEN allows external switch control by 8403
ADC Isolation:	100V with respect to VME 0V limited by 8403
Power:	+5V @ 4A typical if DC-DC converters fitted.

3. BOARD DESCRIPTION

The board is primarily intended to route 4 groups of 16 analogue inputs from PT100 or thermocouple terminal boards to IP-MADC-8403 cards mounted on an 8002 Carrier Board. However, it may also be used for IP-8401-ADCs and has R-C filters across the differential inputs of the ADCs.

Viewing the component side of the board there are four similar groups each with two 5-pin sockets. These allow Hytec DC-DC Converter boards to be fitted which supply +/-12V to their respective sites via the P0/P2 VME connectors. Each converter's output is smoothed by two 100uF tantalum bead capacitors.

The P2 mating connector is the 160 way DIN connector at the base of the board. The P0 mating connector is situated above it. The four analogue groups are designated A-D from the base upwards.

Front panel SCSI connectors 1-4 feed sites A-D and are numbered upwards from the lowest connector.

Noise filters are provided for all 16 channels of each group.

The filters incorporate 1K in series with each analogue signal (high and low) bridged by 100nF capacitors.
Common mode biasing resistors are also fitted for the ADC inputs. These have the values 1Mohms.
The jumpers can be used to select differential connection (positions 2-3) or single-ended (positions 1-2).
Ground discharge resistors are fitted at the base of the board.

4. OPERATING MODES

Configuration
There are two basic operating modes:-
Signal to common
Signal to signal.

Jumpers
Jumpers on each signal return connect them either to the 8403 common input or to the next signal input so that single–ended or differential measurements can be made.

Excitation
Two current sources and +/-12V are available:-

1. +/-12V D.C.
2. Programmable current source 0 to +1mA

5. OPERATION

Select differential or single-ended mode according to the application by setting the jumpers 2-3 (right position) for differential or 1-2 (left) for single-ended. When using the 8913-P PT-100 or 8913-T thermocouple terminal board this is usually single-ended mode. However on the 8913-T differential mode is also used for the cold junction measurement. (Please refer to the 8913 manual for settings)
If isolated power is required plug-in the DC-DC Converter boards and if necessary secure them with appropriate screws through the holes provided. Ensure that a 4A fuse is fitted at the base of the board.
LK1-LK4 connect isolated analogue grounds to VME ground for each group 1-4.
These should only be inserted if isolation is not required.
Connect signals according to the table of connections shown in appendix A.

6. CONNECTORS

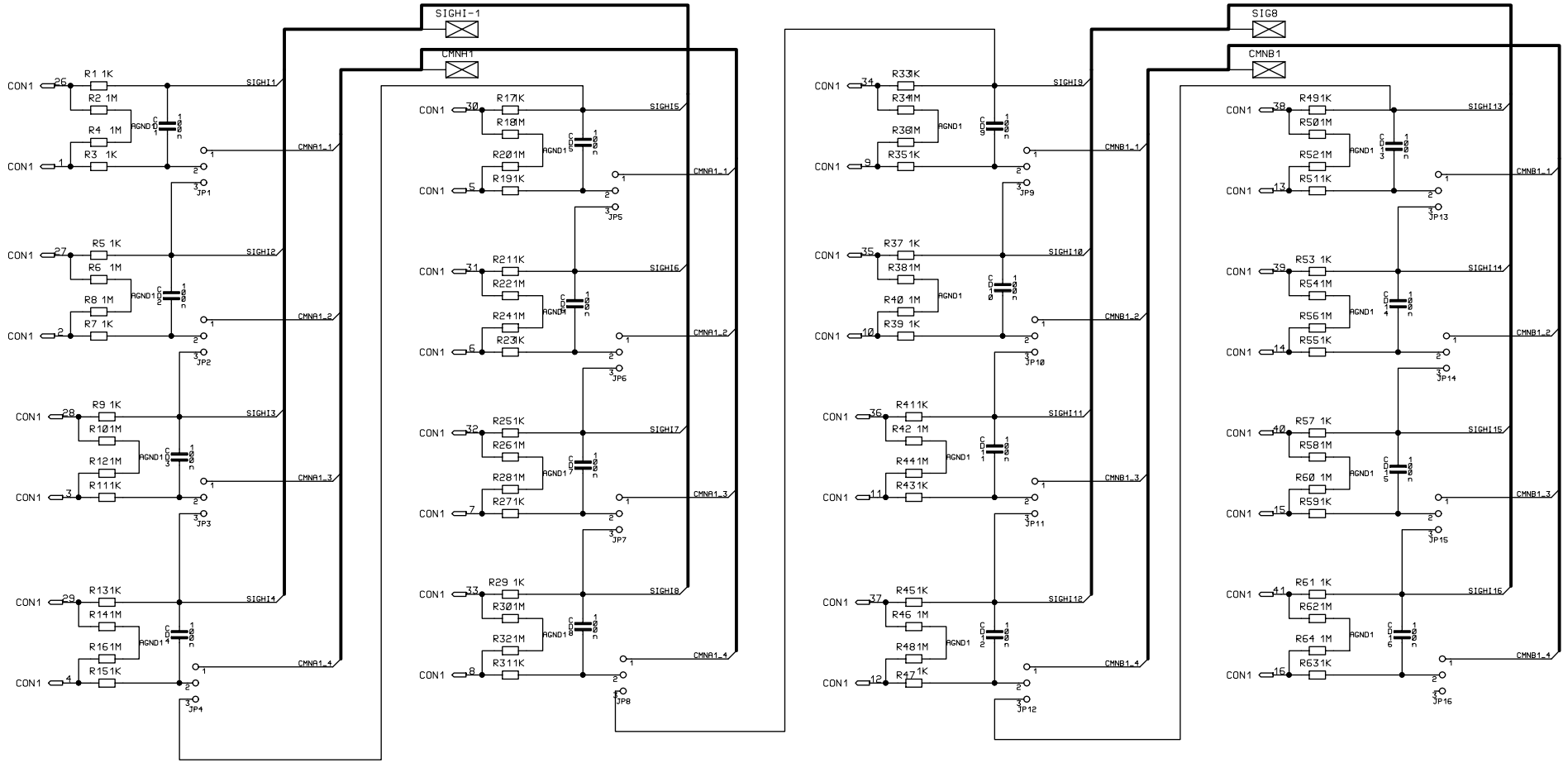
Four 50-way connectors routed to carrier board sites A,B,C and D provide 16 single-ended voltage inputs or 15 difference inputs.

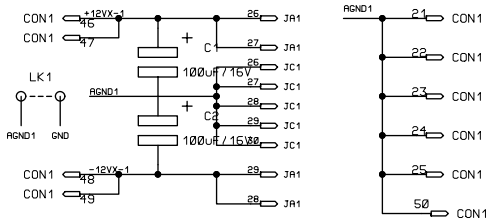
7. APPENDIX A

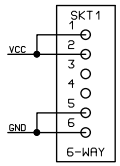
Pin Assignments

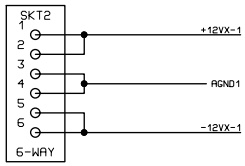
Connectors 1-4

Pin	Signal	Pin	Signal
1	Inp1 -	26	Inp1 +
2	Inp2 -	27	Inp2 +
3	Inp3 -	28	Inp3 +
4	Inp4 -	29	Inp4 +
5	Inp5 -	30	Inp5 +
6	Inp6 -	31	Inp6 +
7	Inp7 -	32	Inp7 +
8	Inp 8 -	33	Inp8 +
9	Inp9 -	34	Inp9 +
10	Inp10 -	35	Inp10 +
11	Inp11 -	36	Inp11 +
12	Inp12 -	37	Inp12 +
13	Inp13 -	38	Inp13 +
14	Inp14 -	39	Inp14 +
15	Inp15 -	40	Inp15 +
16	Inp16 -	41	Inp16 +
17		42	/CALEN
18	Xtrig -	43	Xtrig +
19	IDAC B	44	IDAC A
20	XClk -	45	XClk +
21	AGnd	46	+12V
22	AGnd	47	+12V
23	AGnd	48	-12V
24	AGnd	49	-12V
25	AGnd	50	AGnd







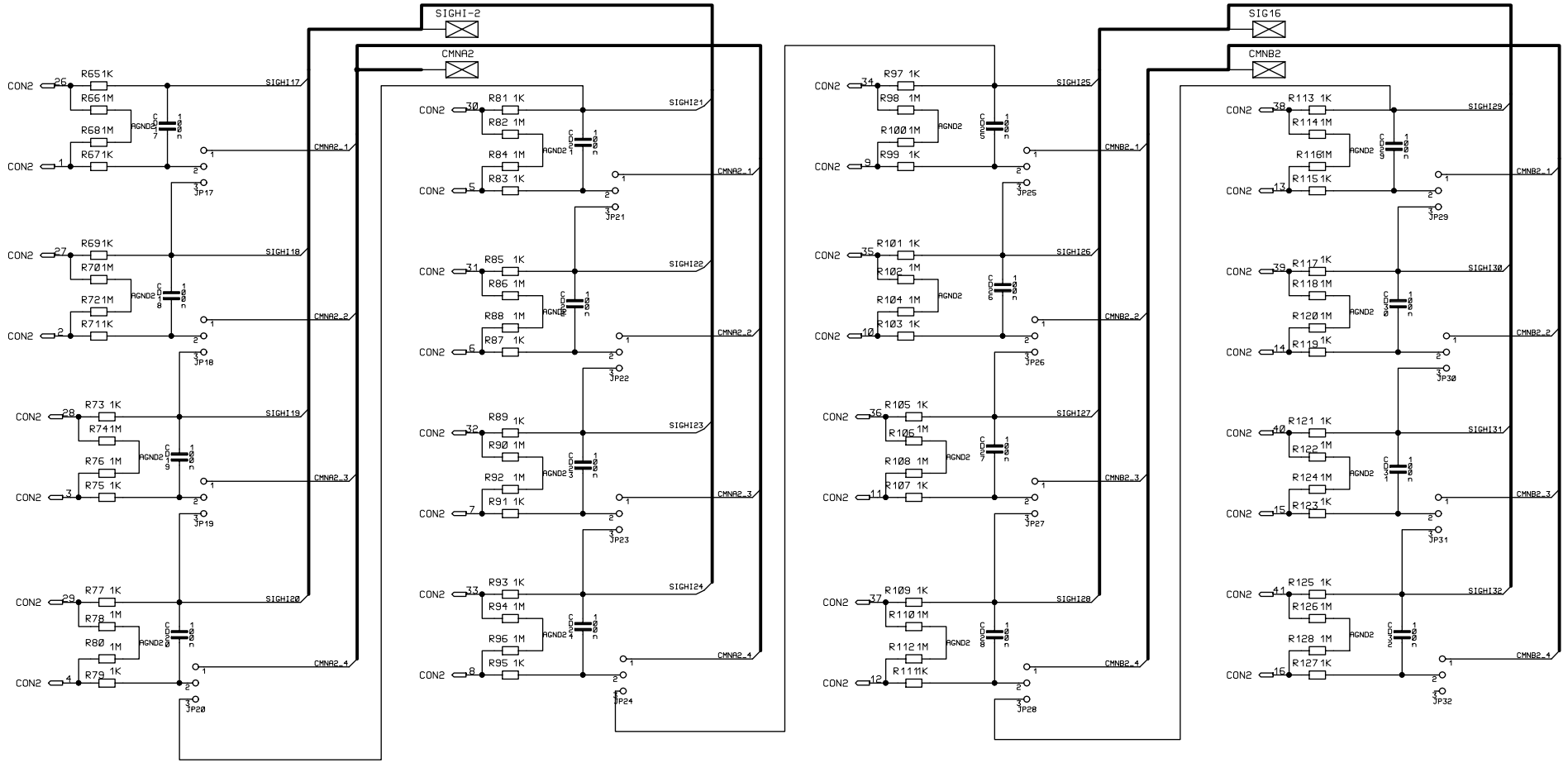


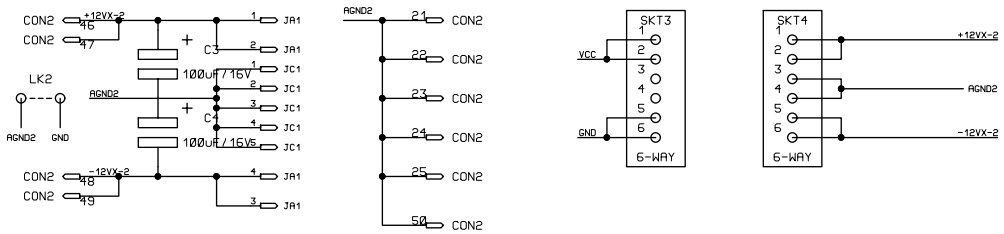
CON1 42 /CALEN1 22 JA1 CON1 43 XTRIGP1 23 JA1 CON1 45 XCLKP1 25 JA1 CON1 44 IDAC1A 24 JA1

CON1 17 Spare1/1 22 JC1 CON1 18 XTRIGN1 23 JC1 CON1 20 XCLKN1 25 JC1 CON1 19 IDAC1B 30 JA1

PROJECT:	8210
TITLE:	8210 TCPT Transition Board
SHEET:	1/6
DRAWING TITLE:	GROUP01
DRAWING NO.:	8210/CCT/A/1/1.0
ISSUE:	1
DATE:	09/09/03
DRAWN BY:	AB
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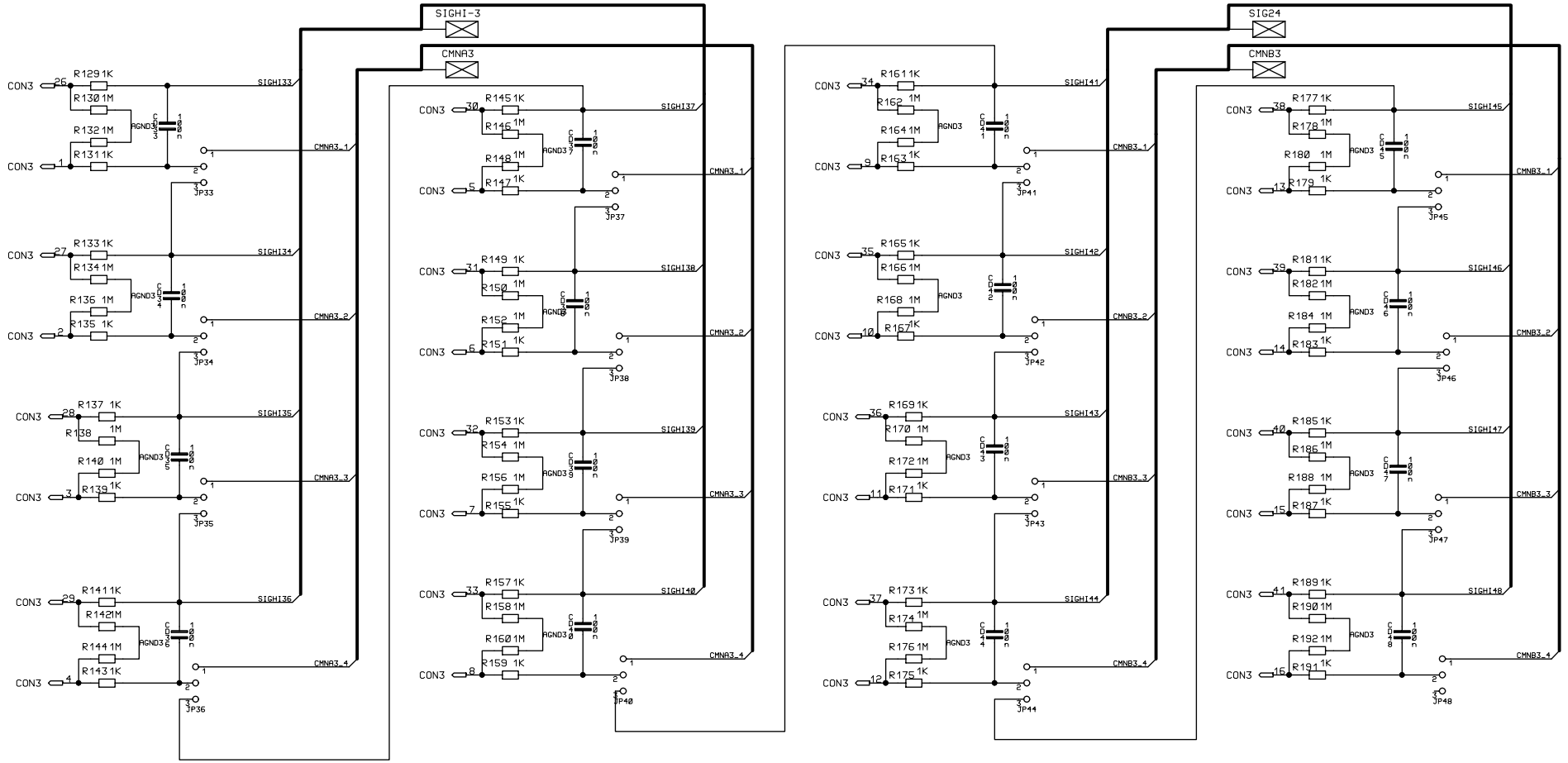


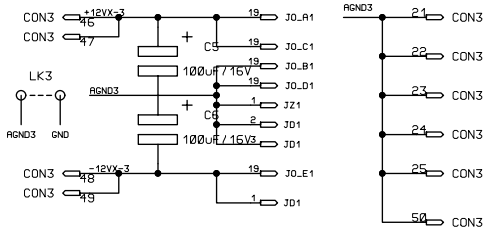
CON2 42 /CALEN2 25 JD1 CON2 43 XTRIGP2 27 JZ1 CON2 45 XCLKP2 29 JD1 CON2 44 IDAC2A 28 JD1

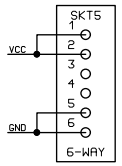
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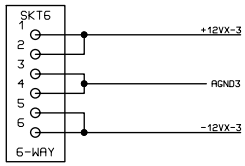
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DATE:	09/09/03
DRAWN BY:	AB
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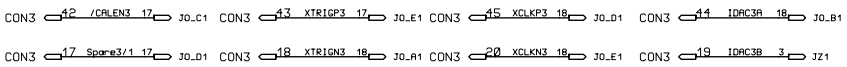
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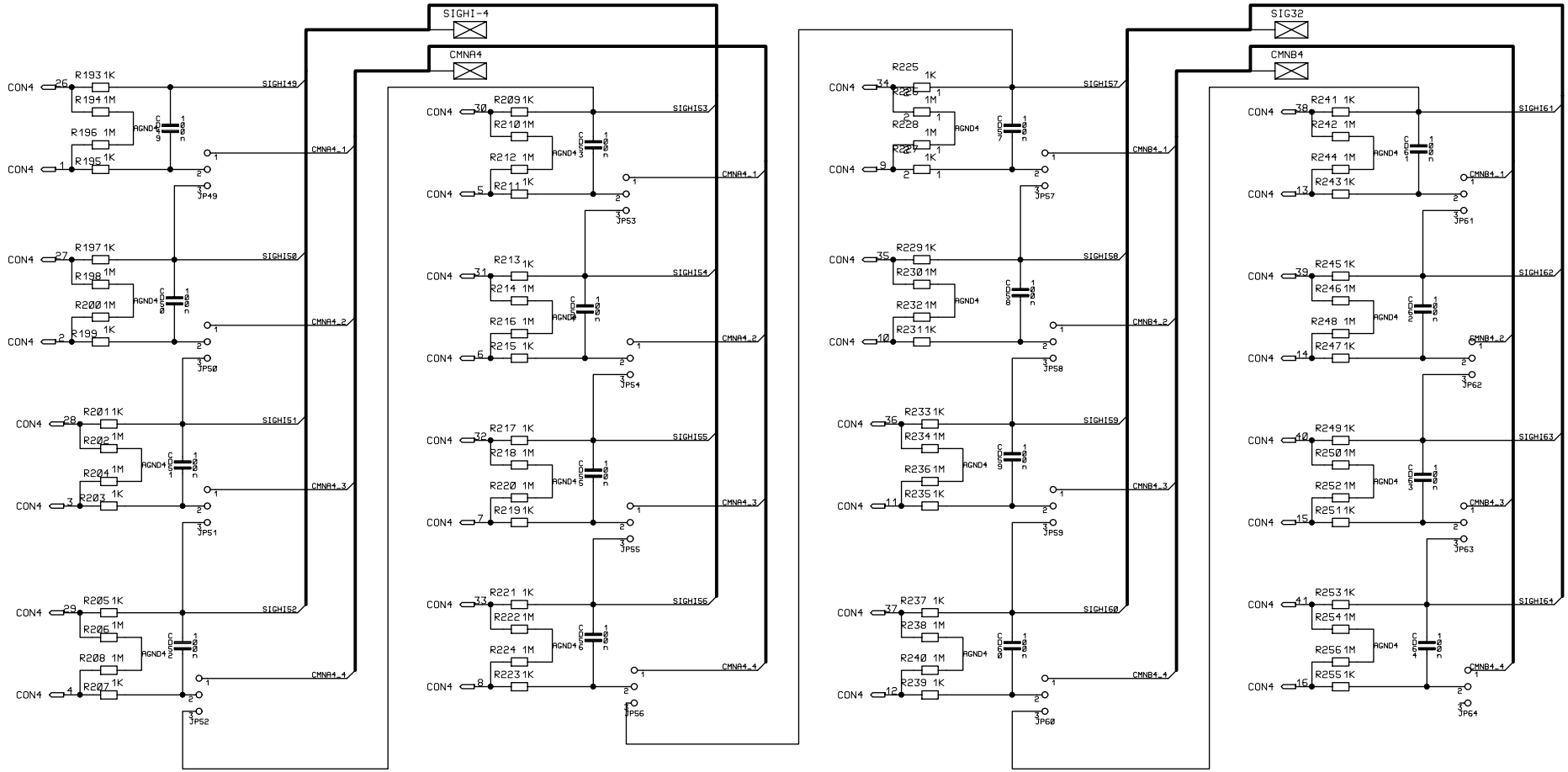


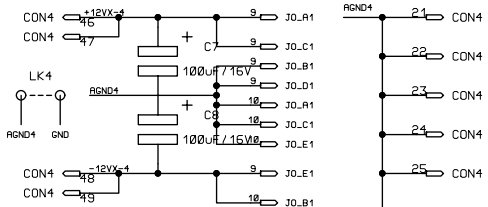


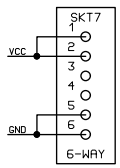


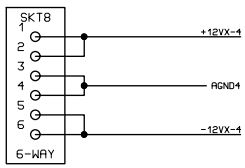
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SHEET:	3/6
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DRAWING NO.:	8210/CCT/A/3/1.0
ISSUE:	1
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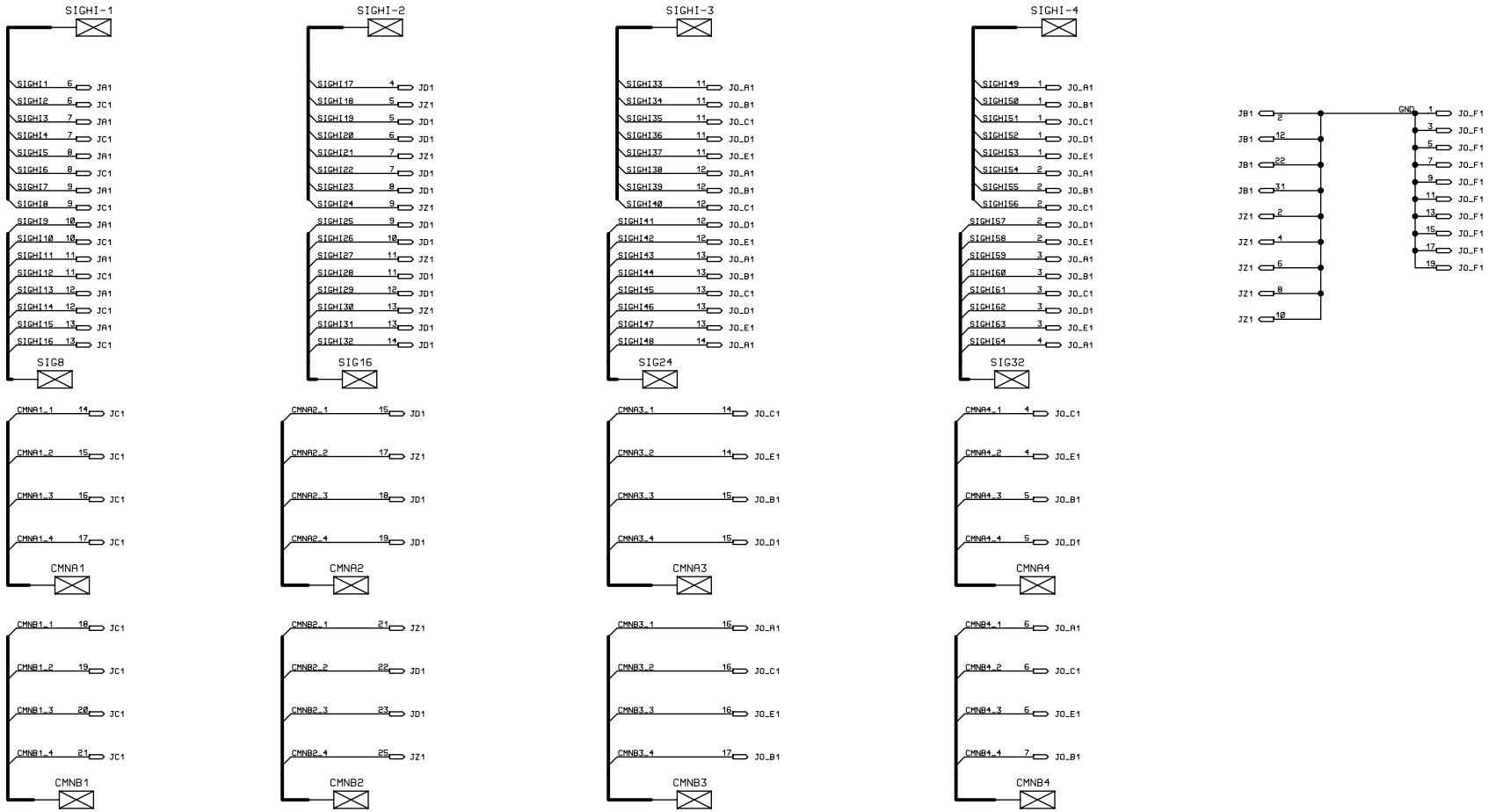




CON4 42 /CALEN4 7 J0_C1
CON4 43 XTRIGP4 7 J0_E1
CON4 45 XCLKP4 8 J0_D1
CON4 44 IDAC4A 8 J0_B1
CON4 17 Spare4/1 7 J0_D1
CON4 18 XTRIGN4 8 J0_A1
CON4 20 XCLKN4 8 J0_E1
CON4 19 IDAC4B 10 J0_D1

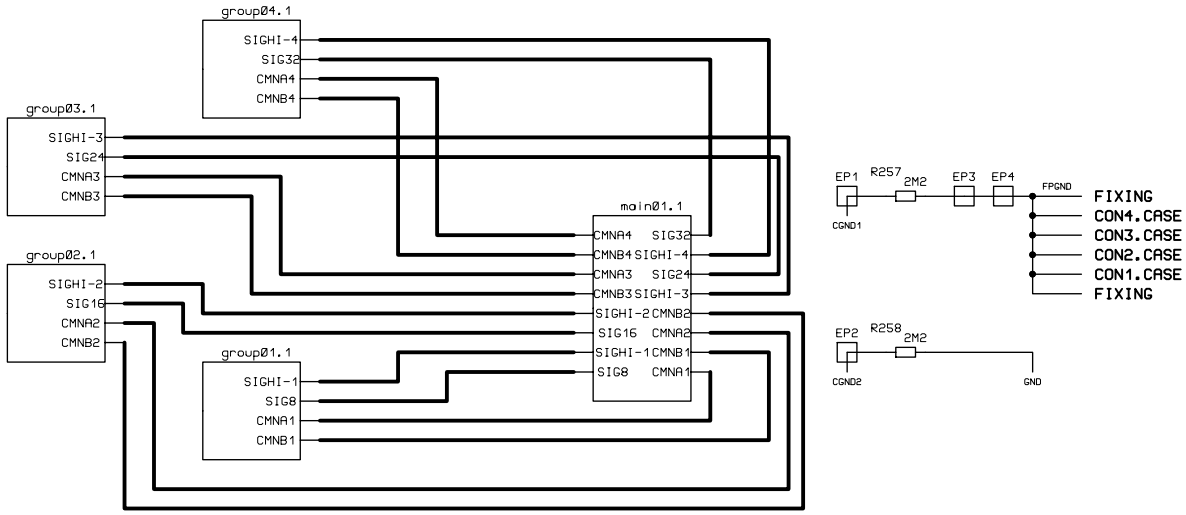
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SHEET:	4/6
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ISSUE:	1
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PROJECT:	8210
TITLE:	8210 TCPT Transition Board
SHEET:	5/6
DRAWING TITLE:	MAIN01
DRAWING NO.:	8210/CCT/A/5/1.0
ISSUE:	1
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PROJECT:	8210
TITLE:	8210 TCPT Transition Board
SHEET:	6/6
DRAWING TITLE:	INTERCONNECT
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ISSUE:	1
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