

28 July 2000

TTC INTERFACE MODULE (TIM) :
MODULE CONNECTIONS to the BACKPLANE

Update Log :

28 Jul. 2000, MP-UCL : Updated with additional changes to CLK40+/-
slot numbering and to ROD-Busy slot numbering
to take into account the move of TIM from
slot 5 to slot 13
03 Jul. 2000, MP-UCL : Corrected & changed as per comments from
ROD Workshop, UCL, 15-16 June 2000
09 Jun. 2000, MP-UCL : Changed as per final "SCT Off Detector Crate
Backplane" document, dated 22 May 2000
07 Dec. 1999, MP-UCL : Removed unused VME signals
01 Dec. 1999, MP-UCL : Added Jaux & JBL minor changes
30 Nov. 1999, MP-UCL : Simplify & JBL minor corrections
29 Nov. 1999, MP-UCL : TIM backplane connections only

**This document is a description of the actual TIM0 module connections
to the ROD Crate Backplane.**

It follows the Interface Specification Document, as shown in the
"SCT Off Detector Crate Back Planes and Crate Card Utilization"

Version 1.0, 8 Oct. 1999
Version 2.n 22 May 2000
Version - 24 July 2000

P1 Connector on TIM module :

<u>Pin</u>	<u>Row Z</u>	<u>Row A</u>	<u>Row B</u>	<u>Row C</u>	<u>Row D</u>	<u>Pin</u>
1		D00		D08	+5V	1
2	Gnd	D01		D09	Gnd	2
3		D02		D10		3
4	Gnd	D03		D11		4
5		D04		D12		5
6	Gnd	D05		D13		6
7		D06		D14		7
8	Gnd	D07		D15		8
9		Gnd		Gnd	GAP*	9
10	Gnd				GA0*	10
11		Gnd		BERR*	GA1*	11
12	Gnd	DS1*			+3.3V	12
13		DS0*		LWORD*	GA2*	13
14	Gnd	WRITE*		AM5	+3.3V	14
15		Gnd		A23	GA3*	15
16	Gnd	DTACK*	AM0	A22	+3.3V	16
17		Gnd	AM1	A21	GA4*	17
18	Gnd		AM2	A20	+3.3V	18
19		Gnd	AM3	A19		19
20	Gnd	IACK*	Gnd	A18	+3.3V	20
21		IACKIN*		A17		21
22	Gnd	IACKOUT*		A16	+3.3V	22
23		AM4	Gnd	A15		23
24	Gnd	A07	IRQ(7)*	A14	+3.3V	24
25		A06	IRQ(6)*	A13		25
26	Gnd	A05	IRQ(5)*	A12	+3.3V	26
27		A04	IRQ(4)*	A11		27
28	Gnd	A03	IRQ(3)*	A10	+3.3V	28
29		A02	IRQ(2)*	A09		29
30	Gnd	A01	IRQ(1)*	A08	+3.3V	30
31		-12V	+5V	+12V	Gnd	31
32	Gnd	+5V	+5V	+5V	+5V	32

GND: 26 pins
+5V 6 pins
+3.3V 10 pins
-12V 1 pin
+12V 1 pin

P2 Connector on TIM module :

<u>Pin</u>	<u>Row Z</u>	<u>Row A</u>	<u>Row B</u>	<u>Row C</u>	<u>Row D</u>	<u>Pin</u>
1			+5V			1
2	Gnd		Gnd			2
3						3
4	Gnd		A24	-5.2V (#)		4
5			A25			5
6	Gnd		A26			6
7		-5.2V (#)	A27			7
8	Gnd		A28			8
9			A29			9
10	Gnd		A30			10
11			A31			11
12	Gnd		Gnd			12
13		-5.2V (#)	+5V			13
14	Gnd					14
15						15
16	Gnd					16
17						17
18	Gnd					18
19		-5.2V (#)		-5.2V (#)		19
20	Gnd					20
21						21
22	Gnd		Gnd			22
23						23
24	Gnd					24
25						25
26	Gnd					26
27						27
28	Gnd					28
29						29
30	Gnd					30
31			Gnd		Gnd	31
32	Gnd		+5V		+5V	32

GND: 21 pins
 +5V: 4 pins
 -5.2V 5 pins

Note : (#) -5.2V supply pins on **TIM P2** are for prototype testing purposes in VME/VXI-type crates at UCL or CERN only, and will not be provided on the final version. All the above -5.2V pins have links for isolation

P3 Connector on TIM module :

<u>Pin</u>	<u>Row Z</u>	<u>Row A</u>	<u>Row B</u>	<u>Row C</u>	<u>Row D</u>	<u>Pin</u>
1		Gnd		+3.3v	ROD-Busy5	1
2			Gnd	ROD-Busy6	+3.3v	2
3		CLK-40+ slot5	CLK-40- slot5	+3.3v	ROD-Busy7	3
4	Gnd	CLK-40+ slot14	CLK-40- slot14	ROD-Busy8	+3.3v	4
5		Gnd		Gnd		5
6		CLK-40+ slot6	CLK-40- slot6	ROD-Busy9	+3.3v	6
7		CLK-40+ slot15	CLK-40- slot15	+3.3v	ROD-Busy10	7
8		CLK-40+ slot7	CLK-40- slot7	+3.3v	+3.3v	8
9	Gnd		Gnd	ROD-Busy11	+3.3v	9
10		CLK-40+ slot16	CLK-40- slot16	Gnd	+3.3v	10
11		Gnd		ROD-Busy12	Laser-Interlock	11
12		CLK-40+ slot8	CLK-40- slot8	ROD-Busy14	Gnd	12
13		CLK-40+ slot17	CLK-40- slot17	ROD-Busy15	ROD-Sense(1)	13
14	Gnd		Gnd	ROD-Busy16	ROD-Busy17	14
15		CLK-40+ slot9	CLK-40- slot9	Gnd	ROD-Busy18	15
16		CLK-40+ slot18	CLK-40- slot18	ROD-Busy19	ROD-Busy20	16
17		Gnd		ROD-Busy21	+5V	17
18		CLK-40+ slot10	CLK-40- slot10		CLK-40+ (5)	18
19	+5V	CLK-40+ slot19	CLK-40- slot19		CLK-40- (5)	19
20		Gnd		Gnd	+5V	20
21		CLK-40+ slot11	CLK-40- slot11		TIM-Busy Out	21
22		CLK-40+ slot20	CLK-40- slot20		+5V	22
23			Gnd	TTC-7B	TTC-7A	23
24	+5V	CLK-40+ slot12	CLK-40- slot12	TTC-6B	TTC-6A	24
25		CLK-40+ slot21	CLK-40- slot21	Gnd	TTC-5A	25
26		Gnd		TTC-5B	TTC-4A	26
27		CLK-40+ slot13	CLK-40- slot13	TTC-4B	+5V	27
28			Gnd	TTC-3B	TTC-3A	28
29	+5V			TTC-2B	TTC-2A	29
30				Gnd	TTC-1A	30
31		Gnd		TTC-1B	TTC-0A	31
32				TTC-0B	+5V	32

GND : 22 pins

+5V : 8 pins

+3.3V : 10 pins (ARE NOT USED BY TIM, BUT ARE DECOUPLED ON TIM USING 100nF CAPACITORS TO GND)

Note: **The TIM module must only be used in its dedicated slot 13**

Note: The ground pins have been selected so that no damage will occur if the card is put in any slot

Note: The signal pin selection may cause damage to the TIM or BOC.

- Note:**
- (1) **ROD-Sense:** Grounded on all RODs and on backplane in TIM slot only, pulled high on TIM and BOC by 1k resistor
 - (4) **CLK-40 +/- slotNN:** from TIM to BOC only, all clock lines have the same electronic length and are 100 ohm impedance
 - (5) **CLK-40 +/- :** return to TIM. This is the return signal from TIM slot Row A and B above. It is the same electrical length as all the other clock lines from TIM to BOC, and the same 100 ohm impedance
- All **CLK-40 +/-** are differential PECL signal pairs.
 - They all have 270R resistor to GND on TIM and have 100R resistor between differential pairs on BOC

Note: - **TTC-(0-7)A/B** are **LOW GOING** TTL signals bussed to all RODs. They are not used on BOCs.

These lines are terminated on the backplane in slot 21 and slot 5 respectively

Impedance about 50 ohms with all ROD cards plugged in

Note: - **ROD-BUSY(5-12)&(14-21)** are **LOW GOING** LV signals, point-to-point from all RODs. They are not used on BOCs.

These lines are pulled high on TIM by 10k resistor to +3V3

Paux ("Jaux") Connector on TIM :

Note : Paux not soldered in - pads only provided

<u>Pin</u>	<u>Row A</u>	<u>Row B</u>	<u>Row C</u>	<u>Pin</u>
1		Gnd		1
2		Gnd		2
3		Gnd	Gnd	3
4		Gnd		4
5		Gnd		5
6		Gnd		6
7				7
8				8
9	-5.2V (#)	-5.2V (#)	-5.2V (#)	9
10	-5.2V (#)	-5.2V (#)	-5.2V (#)	10

GND: 6 pins
-5.2V 6 pins

Note : (#) -5.2V supply pins on **TIM Paux** are for prototype testing purposes in VME/VXI-type crates at UCL or CERN only, and will not be provided on the final version. All the above -5.2V pins have links for isolation