Connectors

1 Fairisle Fab 4 to Backplane Connector

Notes:

"In" and "out" are with respect to the fabric, (ie towards fabric is in, towards transmission line is out).

Things are very tight here. This leaves very little space for grounds.

	a	b	c
1	dOut[8]	5V	dOut[16]
2	dOut[9]	GND	dOut[17]
3	dOut[10]		dOut[18]
4	dOut[11]		dOut[19]
5	dOut[12]		dOut[20]
6	dOut[13]		dOut[21]
7	dOut[14]	ackForOut[0]	dOut[22]
8	dOut[15]	ackForOut[1]	dOut[23]
9	dOut[0]	ackForOut[2]	dOut[24]
10	dOut[1]	ackForOut[3]	dOut[25]
11	dOut[2]	fsForOut	dOut[26]
12	dOut[3]	GND	dOut[27]
13	dOut[4]	5V	dOut[28]
14	dOut[5]	phi2	dOut[29]
15	dOut[6]	phi1	dOut[30]
16	dOut[7]		dOut[31]
17	dIn[8]		dIn[16]
18	dIn[9]		dIn[17]
19	dIn[10]		dIn[18]
20	dIn[11]		dIn[19]
21	dIn[12]		dIn[20]
22	dIn[13]	GND	dIn[21]
23	dIn[14]	ackForIn[0]	dIn[22]
24	dIn[15]	ackForIn[1]	dIn[23]
25	dIn[0]	ackForIn[2]	dIn[24]
26	dIn[1]	ackForIn[3]	dIn[25]
27	dIn[2]	fsForIn	dIn[26]
28	dIn[3]		dIn[27]
29	dIn[4]	resetBar	dIn[28]
30	dIn[5]		dIn[29]
31	dIn[6]	GND	dIn[30]
32	dIn[7]	5V	dIn[31]

2 Fairisle Connector

Notes:

"In" and "out" are with respect to the fabric, (ie fabric is in, transmission line is out).

There are essential two types of interface sync and async; sync uses frame sync and phi, async uses Fifo control.

The B row is VME (J2) compatible. (Ribbon connectors will not pickup row B.)

The daughter board connector on the FPC2 has only row A populated.

	a	b	c
1	GND (m0)	5V	GND
2	GND (m1)	GND	GND
3	GND (m2)	VME	GND
4	dOut[0]	VME	GND
5	dOut[1]	VME	GND
6	dOut[2]	VME	GND
7	dOut[3]	VME	GND
8	dOut[4]	VME	GND
9	dOut[5]	VME	GND
10	dOut[6]	VME	GND
11	dOut[7]	VME	GND
12	NC / SOCOut	GND	GND
13	ackForOut / OutFifoRBar	5V	GND
14	fsForOut / OutFifoEBar	VME	GND
15	phi2 / NC	VME	GND
16	phi1 / NC	VME	GND
17	dIn[0]	VME	GND
18	dIn[1]	VME	GND
19	dIn[2]	VME	GND
20	dIn[3]	VME	GND
21	dIn[4]	VME	GND
22	dIn[5]	GND	GND
23	dIn[6]	VME	GND
24	dIn[7]	VME	GND
25	NC / SOCIn	VME	GND
26	ackForIn / InFifoRBar	VME	GND
27	fsForIn / InFifoEBar	VME	GND
28	NC / FifoResetBar	VME	GND
29	ResetBarOut	VME	GND
30	5V (m3)	VME	5V
31	5V (m4)	GND	5V
32	5V (m5)	5V	5V

3 Clock Generation Board Connector

Notes:

Each clock generation board drives eight port controller slots (labelled zero to seven) and frame synchronisation and reset signals for two switches (labelled left and right).

This table is incorrect in the orange book.

	a	b	c
1	NC	5V	NC
2	NC	5V	NC
3	NC	5V	NC
4	NC	reset for right switch	NC
5	NC	reset for left switch	NC
6	NC	phi1 for zero	NC
7	NC	phi2 for zero	NC
8	NC	phi1 for one	NC
9	NC	phi2 for one	NC
10	NC	phi1 for two	NC
11	NC	phi2 for two	NC
12	NC	phi1 for three	NC
13	NC	phi2 for three	NC
14	NC	phi1 for four	NC
15	NC	phi2 for four	NC
16	NC	phi1 for five	NC
17	NC	phi2 for five	NC
18	NC	phi1 for six	NC
19	NC	phi2 for six	NC
20	NC	phi1 for seven	NC
21	NC	phi2 for seven	NC
22	NC	phi1 for left fabric	NC
23	NC	phi2 for left fabric	NC
24	NC	phi1 for right fabric	NC
25	NC	phi2 for right fabric	NC
26	NC	frame for right switch	NC
27	NC	frame for left switch	NC
28	NC	GND	NC
29	NC	GND	NC
30	NC	GND	NC
31	NC	GND	NC
32	5V	NC	NC

4 Cable Colour Protocol

It is important when connecting together two transmission boards, or a transmission and a Yes or Maybe board that no two transmitters are connected together. It is also important that no transmitter or receiver is connected to an Ethernet or video source both of which can use similar cable and connectors.

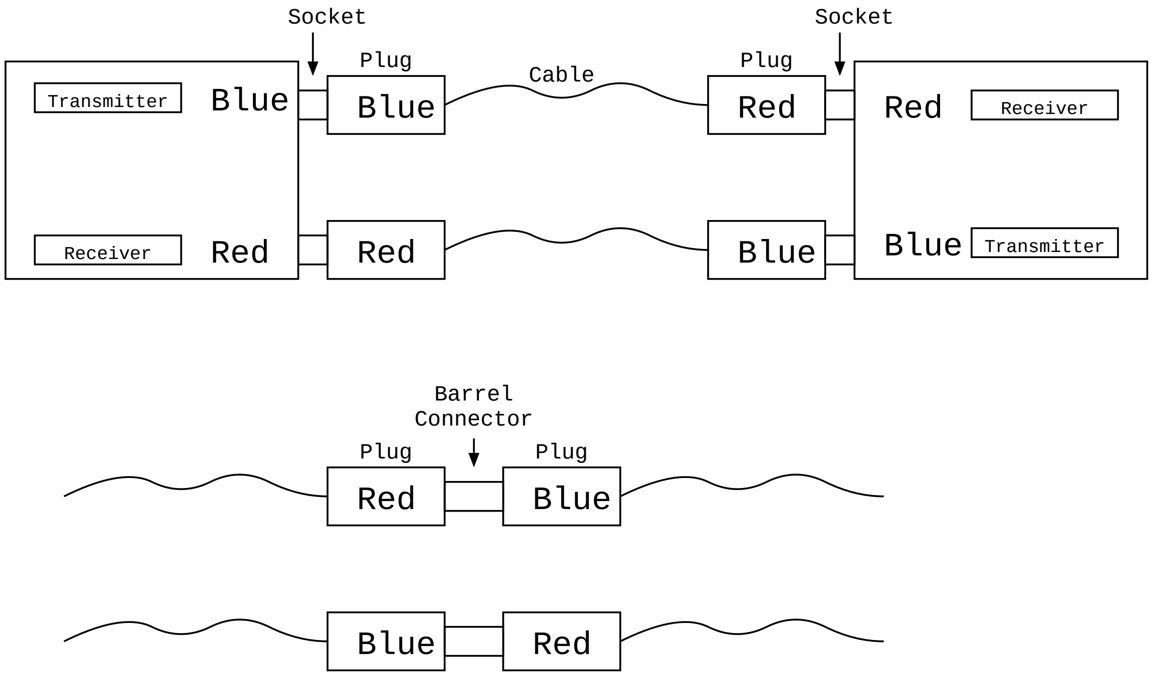

Figure 1: Cable colour code

The cable protocol shown in figure 1 is designed to prevent this. On the end of each cable is attached a red and a blue strain relief (one on each end). Each transmitter has a blue socket (signified by a blue nut and washer holding the socket to the front panel). Into this the blue end of a cable should be plugged. Similarly, each receiver has a red socket into which the red end of a cable should be plugged.

When two cables are joined (by a barrel connector), the blue end of one cable should be connected to the red end of another.

The cable joining the transmitter on one board to the receiver on another and the cable going the other way are logically joined. In order to enforce this and to help differentiate the cables from Ethernet or video cables, they are physically joined. Shotgun cable (dual coax) is use and each cable has a red and blue strain relief on each end.

5 Yes V2 drop cable D-type connector

The drop cable connector on the 'Yes' board is a 9 pin male D-type connector. (see figure 2) Pins 1 and 6 are transmit data and pins 5 and 9 are receive data. Drop cables should cross over the pairs. Pin 3 is local ground. To avoid ground loops, the cable screen should be connected to pin 3 at one end only.

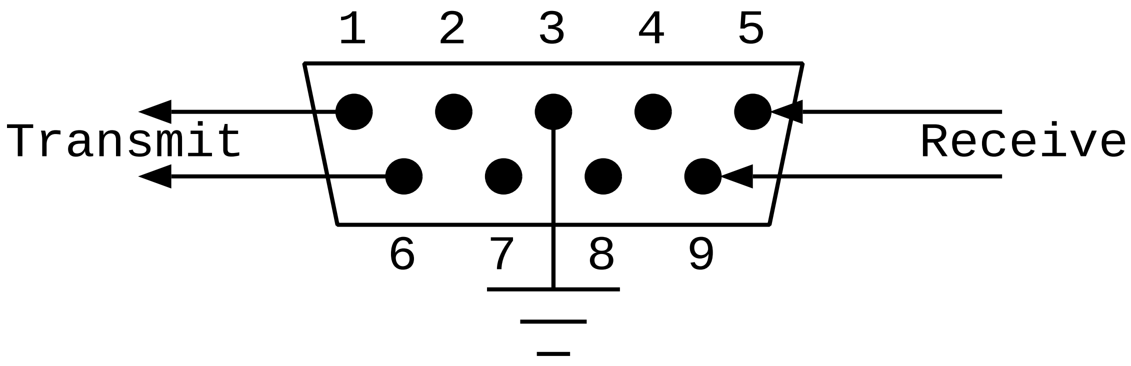

Figure 2: The Yes V2.2 drop cable D-type connector

Cables connecting the 'Yes' board to Fairisle port controllers or null port controllers should have a red strain relief on the other end of the coax cable connected to pins 1 and 6 of a female D-type connector, and a blue strain relief on the other end of the coax cable connected to pins 5 and 9.

6 Yes V2 to Yes V3 or 'Milway' Switch

Figure 3 shows the simple resistor bridge required to connect the 'Yes V2.2' board to a 'Milway' switch or 'Yes' boards which use the bidirectional coax protocol.

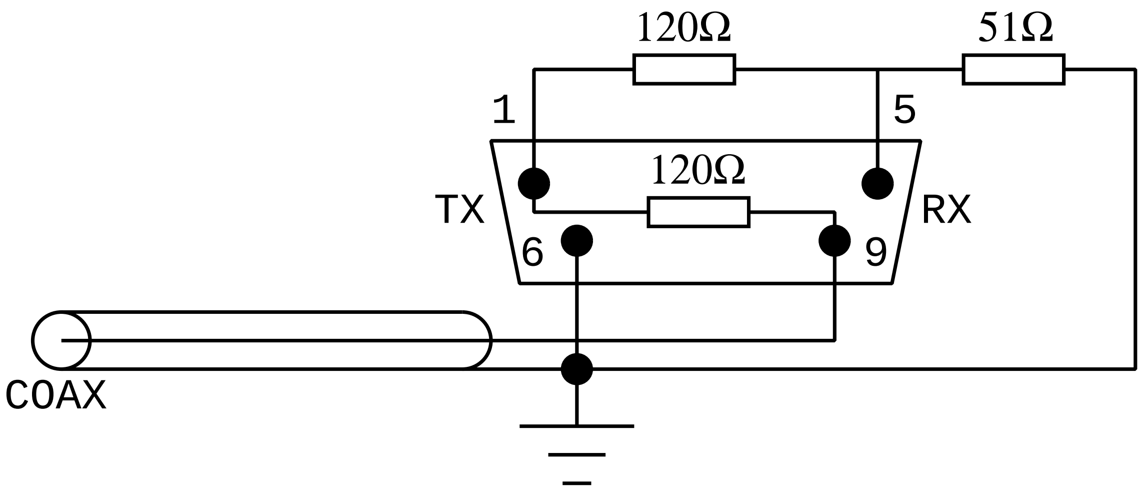

Figure 3: The Yes V2 to Yes V3 or Milway Switch

7 Backplane Slots

The following diagram shows which slots are connected to which fabric, and the number of each slot.

Slot arrangement for 4x4 fabrics

0				1				Fabric in lower left slot	CLOCK		2				3		
			0				1	Fabric in lower right slot				2				3	
	0				1			Fabric in upper left slot		2				3			
		0				1		Fabric in upper left slot					2				3

Slot arrangement for 8x8 fabrics

4	0			5	1			8 by 8 Fabric	Empty		2	6			3	7		
		0	4			1	5	Empty	8 by 8 Fabric				6	2			7	3

Slot arrangement for 16x16 fabrics

12	8	0	4	13	9	1	5	8 by 8 Fabric	8 by 8 Fabric		10	14	6	2	11	15	7	3

Figure 4: Backplane Slots

The 16x16 switch shown in this diagram has the fabrics in the preferred order. i.e. the odd numbered fabric in the left hand fabric slot (see document 28).