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To: Mark IV Development Group

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Subject: System Data Interface Specification

In the Mark IV and EVN correlator systems, DATA is carried from the SU to the Correlator Input Board, from the SU to the DDU pre-selector, and from the DDU post-selector to the Correlator Input via DATA LINKs, which include 24:16 multiplexers and 16:24 de-multiplexers shown in the attached block diagrams. Care must be taken to insure that this multiplexing and de-multiplexing takes place in a consistent way so that the proper bits arrive at their destinations at the correct times. If all multiplexers and de-multiplexers conform to these block diagrams, and if the connections to the serial link modules conform to the attached pin assignments, then the bits should arrive at the right place at the right time.

1. Pin assignments are shown in the tables on the attached sheets. Note that each connector has half of the even and half of the odd bits, in order to implement the DDUless Mark IV correlator described in Mark IV Memo #197.
2. Mechanical
  - Connector type: 34-pin IDC header 3M 929665-01-17-10 or 924227-24-17-10
  - Mating Socket: 3M 929842-01-17-10 board-mounted, 3M 3414-6000 for ribbon cable.
  - Connector locations: 8 cm apart, to mate with Serial Link Transmitter Module.
3. Electrical
  - See attached block diagrams and Mark IV Memo #198.
4. See other relevant documents:
  - a. Fairchild or National Semiconductor F100124, '125, '324, & '325 Data Sheets
  - b. Hewlett Packard HDMP-1012/14 Serial Link Data Sheet
  - c. Mark IV Memos #174, #197 & #198
5. Notes:
  - a. With a DDU, each of 2 serial links will carry 24 signal bits, BOCF, Data Available (DAV), and CLOCK. Without a DDU, each of 4 serial links will carry 12 signal bits, BOCF, Data Available (DAV), and CLOCK.
  - b. To maximize reliability of the links, DAV should be false whenever the SU is not sending useful data, and validity bits should be set invalid whenever DAV or READY is false.

## SYSTEM DATA INTERFACE PIN ASSIGNMENTS

SU INTERFACE MODULE &  
DD POST-SELECTOR BOARD

DD PRE-SELECTOR BOARD &  
CORRELATOR INPUT BOARD

TRANSMITTER LINK AB:

RECEIVER LINK AB:

J1: Function	J2: Function	J1: Function	J2: Function
1 BOCF	1 BOCF	1 BOCFA	1 BOCFB
2 ECLGND	2 ECLGND	2 ECLGND	2 ECLGND
3 EVEN00	3 EVEN04	3 EVEN00	3 EVEN04
4 ECLGND	4 ECLGND	4 ECLGND	4 ECLGND
5 EVEN01	5 EVEN05	5 EVEN01	5 EVEN05
6 ECLGND	6 ECLGND	6 ECLGND	6 ECLGND
7 EVEN02	7 EVEN06	7 EVEN02	7 EVEN06
8 ECLGND	8 ECLGND	8 ECLGND	8 ECLGND
9 EVEN03	9 EVEN07	9 EVEN03	9 EVEN07
10 ECLGND	10 ECLGND	10 ECLGND	10 ECLGND
11 ODD00	11 ODD04	11 ODD00	11 ODD04
12 ECLGND	12 ECLGND	12 ECLGND	12 ECLGND
13 ODD01	13 ODD05	13 ODD01	13 ODD05
14 ECLGND	14 ECLGND	14 ECLGND	14 ECLGND
15 ODD02	15 ODD06	15 ODD02	15 ODD06
16 ECLGND	16 ECLGND	16 ECLGND	16 ECLGND
17 ODD03	17 ODD07	17 ODD03	17 ODD07
18 ECLGND	18 ECLGND	18 ECLGND	18 ECLGND
19 CLOCK	19 CLOCK	19 CLOCKA	19 CLOCKB
20 ECLGND	20 ECLGND	20 ECLGND	20 ECLGND
21 SEL0	21 SEL0	21 SEL0A	21 SEL0B
22 ECLGND	22 ECLGND	22 ECLGND	22 ECLGND
23 SEL1	23 SEL1	23 SEL1A	23 SEL1B
24 ECLGND	24 ECLGND	24 ECLGND	24 ECLGND
25 DAV*	25 DAV*	25 DAV1*A	25 DAV2*B
26 ECLGND	26 ECLGND	26 ERRORA	26 ERRORB
27 READY1	27 READY2	27 READYA	27 READYB
28 RESET*	28 RESET*	28 RESET*	28 RESET*
29 N/C	29 N/C	29 XTAL	29 XTAL
30 ECLGND	30 ECLGND	30 ECLGND	30 ECLGND
31 -2 Volts	31 -2 Volts	31 N/C	31 N/C
32 GND	32 GND	32 GND	32 GND
33 -5 Volts	33 -5 Volts	33 -5 Volts	33 -5 Volts
34 GND	34 GND	34 GND	34 GND

Note: ERRORx and XTAL are used only  
on the receiver side of the link.  
-2 Volts is used only on the  
transmitter side of the link.

## SYSTEM DATA INTERFACE PIN ASSIGNMENTS

### SU INTERFACE MODULE & DD POST-SELECTOR BOARD

### DD PRE-SELECTOR BOARD & CORRELATOR INPUT BOARD

#### TRANSMITTER LINK CD:

J3: Function	J4: Function
1 BOCF	1 BOCF
2 ECLGND	2 ECLGND
3 EVEN08	3 EVEN12
4 ECLGND	4 ECLGND
5 EVEN09	5 EVEN13
6 ECLGND	6 ECLGND
7 EVEN10	7 EVEN14
8 ECLGND	8 ECLGND
9 EVEN11	9 EVEN15
10 ECLGND	10 ECLGND
11 ODD08	11 ODD12
12 ECLGND	12 ECLGND
13 ODD09	13 ODD13
14 ECLGND	14 ECLGND
15 ODD10	15 ODD14
16 ECLGND	16 ECLGND
17 ODD11	17 ODD15
18 ECLGND	18 ECLGND
19 CLOCK	19 CLOCK
20 ECLGND	20 ECLGND
21 SEL0	21 SEL0
22 ECLGND	22 ECLGND
23 SEL1	23 SEL1
24 ECLGND	24 ECLGND
25 DAV*	25 DAV*
26 ECLGND	26 ECLGND
27 READY1	27 READY2
28 RESET*	28 RESET*
29 N/C	29 N/C
30 ECLGND	30 ECLGND
31 -2 Volts	31 -2 Volts
32 GND	32 GND
33 -5 Volts	33 -5 Volts
34 GND	34 GND

#### RECEIVER LINK CD:

J3: Function	J4: Function
1 BOCFC	1 BOCFD
2 ECLGND	2 ECLGND
3 EVEN08	3 EVEN12
4 ECLGND	4 ECLGND
5 EVEN09	5 EVEN13
6 ECLGND	6 ECLGND
7 EVEN10	7 EVEN14
8 ECLGND	8 ECLGND
9 EVEN11	9 EVEN15
10 ECLGND	10 ECLGND
11 ODD08	11 ODD12
12 ECLGND	12 ECLGND
13 ODD09	13 ODD13
14 ECLGND	14 ECLGND
15 ODD10	15 ODD14
16 ECLGND	16 ECLGND
17 ODD11	17 ODD15
18 ECLGND	18 ECLGND
19 CLOCKC	19 CLOCKD
20 ECLGND	20 ECLGND
21 SEL0C	21 SEL0D
22 ECLGND	22 ECLGND
23 SEL1C	23 SEL1D
24 ECLGND	24 ECLGND
25 DAV1*C	25 DAV2*D
26 ERRORC	26 ERRORD
27 READYC	27 READYD
28 RESET*	28 RESET*
29 XTAL	29 XTAL
30 ECLGND	30 ECLGND
31 N/C	31 N/C
32 GND	32 GND
33 -5 Volts	33 -5 Volts
34 GND	34 GND

Note: ERRORx and XTAL are used only  
on the receiver side of the link.  
-2 Volts is used only on the  
transmitter side of the link.