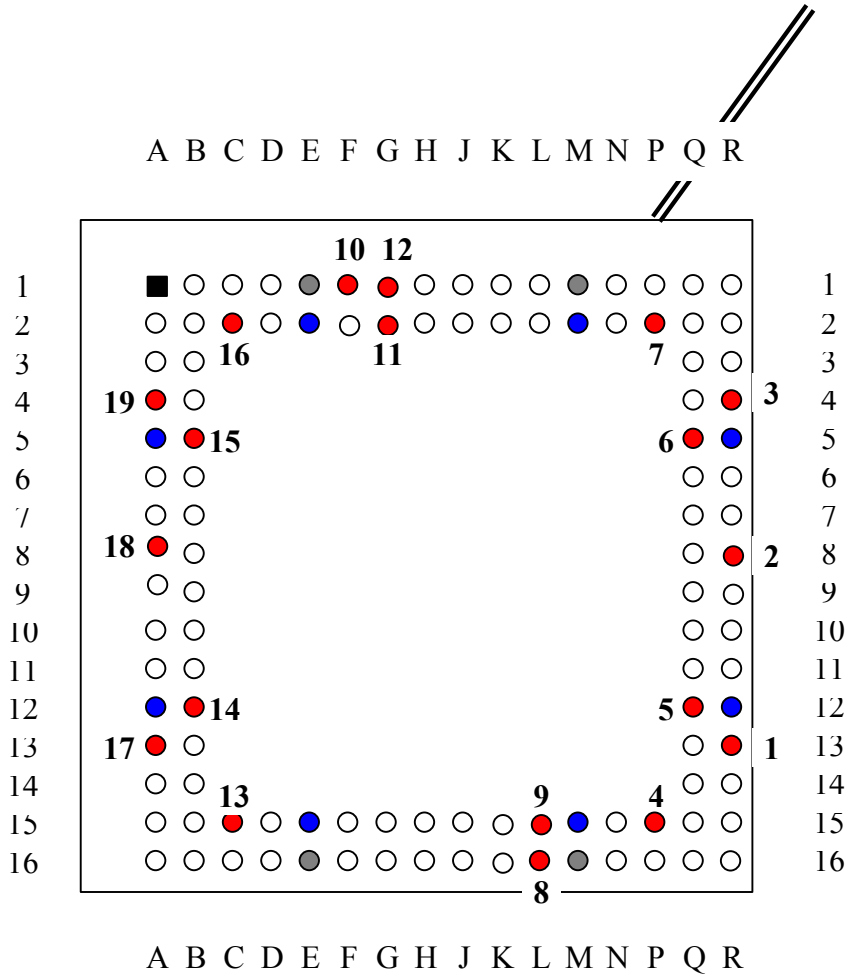
HE Interface Cards.

HE HPD Interface Card ZIF Socket / rear view.

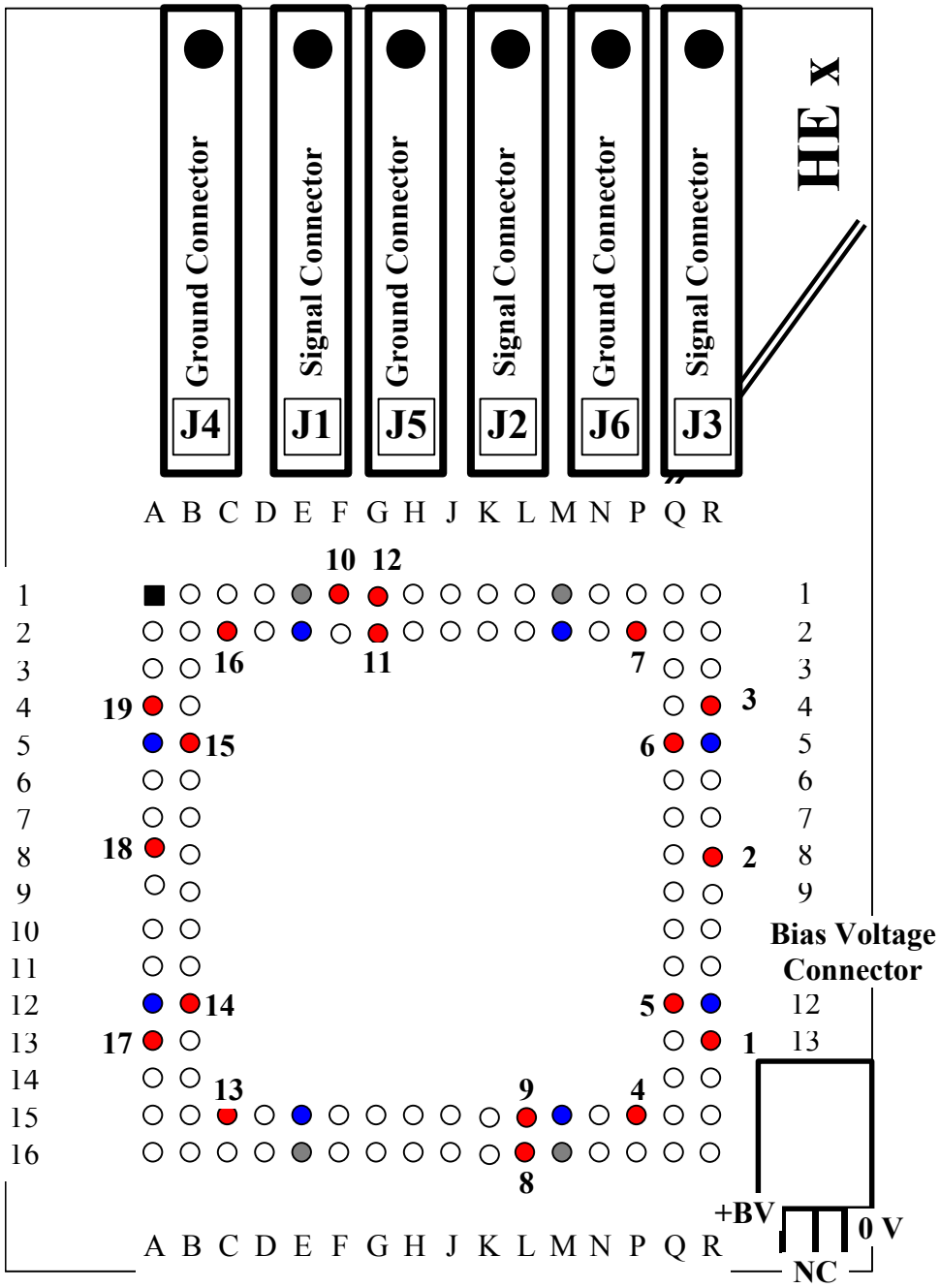


Contacts:
Red – signal pixels
Grey – guard rings
Blue – bias voltage

Signal Pixels										
Pix#	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Pin#	**R13**	**R8**	**R4**	**P15**	**Q12**	**Q5**	**P2**	**L16**	**L15**	**F1**
Signal Pixels										
Pix#	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	
Pin#	**G2**	**G1**	**C15**	**B12**	**B5**	**C2**	**A13**	**A8**	**A4**	
Guard Ring Contacts										
Pin#	**E1**	**E16**	**M1**	**M16**						
Bias Voltage Contacts (negative voltage)										
Pin#	**A5**	**A12**	**E2**	**E15**	**M2**	**M15**	**R5**	**R12**		

HE interface card /rear view.

Signal Connector # corresponds to the RM QIE Card #.



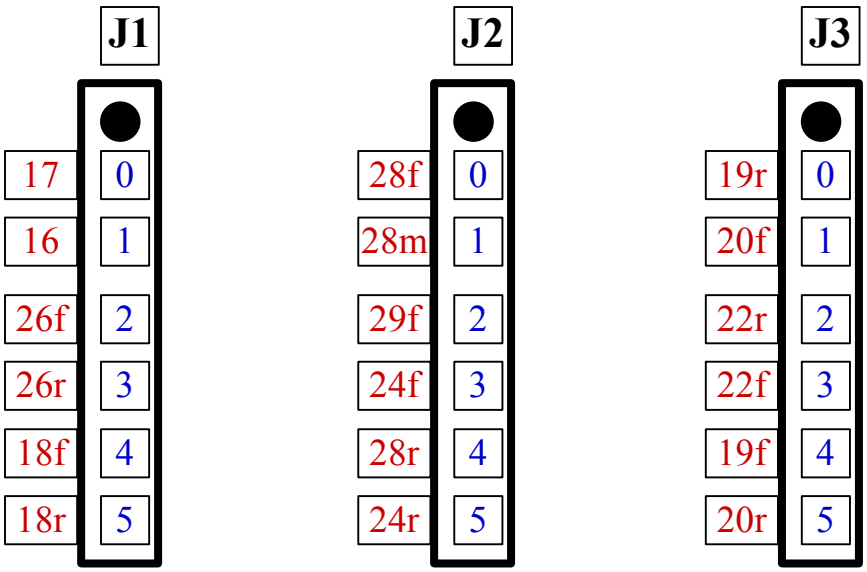
Signal Cable. 26 conductor 0.5 mm pitch, silver ink shielded FPC.
80 mm long.

HPD QIE Board Pin #	Signal	HE Int. Card Pin #	HPD QIE Board Pin #	Signal	HE Int. Card Pin #
1	gnd	1	**14**	**Ref3**	**14**
2	**Ref0**	**2**	15	gnd	15
3	gnd	3	**16**	**Sig3**	**16**
4	**Sig0**	**4**	17	gnd	17
5	gnd	5	**18**	**Ref4**	**18**
6	**Ref1**	**6**	19	gnd	19
7	gnd	7	**20**	**Sig4**	**20**
8	**Sig1**	**8**	21	gnd	21
9	gnd	9	**22**	**Ref5**	**22**
10	**Ref2**	**10**	23	gnd	23
11	gnd	11	**24**	**Sig5**	**24**
12	**Sig2**	**12**	25	gnd	25
13	gnd	13	26	gnd	26

Ground Cable. 26 conductor 0.5 mm pitch FPC.
80 mm for long.

HPD QIE Board Pin #	Signal	HE Int. Card Pin #	HPD QIE Board Pin #	Signal	HE Int. Card Pin #
1	gnd	1	14	gnd	14
2	gnd	2	15	gnd	15
3	gnd	3	16	gnd	16
4	gnd	4	17	gnd	17
5	gnd	5	18	gnd	18
6	gnd	6	19	gnd	19
7	gnd	7	20	gnd	20
8	gnd	8	21	gnd	21
9	gnd	9	22	gnd	22
10	gnd	10	23	gnd	23
11	gnd	11	24	gnd	24
12	gnd	12	25	gnd	25
13	gnd	13	26	gnd	26

HE RM1, 4 Interface Card, Tower Map



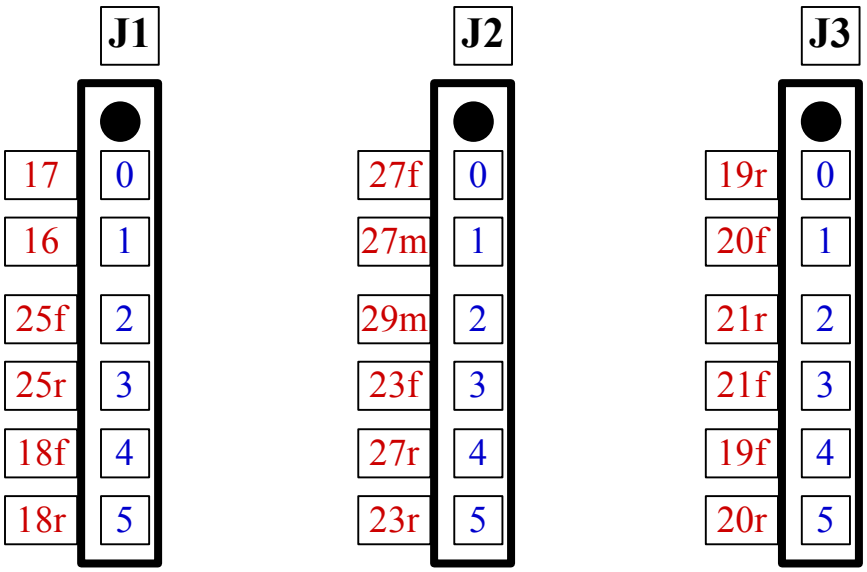
Black	-	Connector/QIE Card #
Blue	-	QIE Ch. #
Red	-	Tower #

Tower Mapping for HE RM1, 4

QIE Ch.#	HE Tower		
	Card1	Card2	Card3
0	17	28f	19r
1	16	28m	20f
2	26f	29f	22r
3	26r	24f	22f
4	18f	28r	19f
5	18r	24r	20r

f – front section; m – middle section; r – rear section

HE RM2, 3 Interface Card, Tower Map



Black	-	Connector/QIE Card #
Blue	-	QIE Ch. #
Red	-	Tower #

Tower Mapping for HE RM2, 3

QIE Ch.#	HE Tower		
	Card1	Card2	Card3
0	17	27f	19r
1	16	27m	20f
2	25f	29m	21r
3	25r	23f	21f
4	18f	27r	19f
5	18r	23r	20r

f – front section; m – middle section; r – rear section

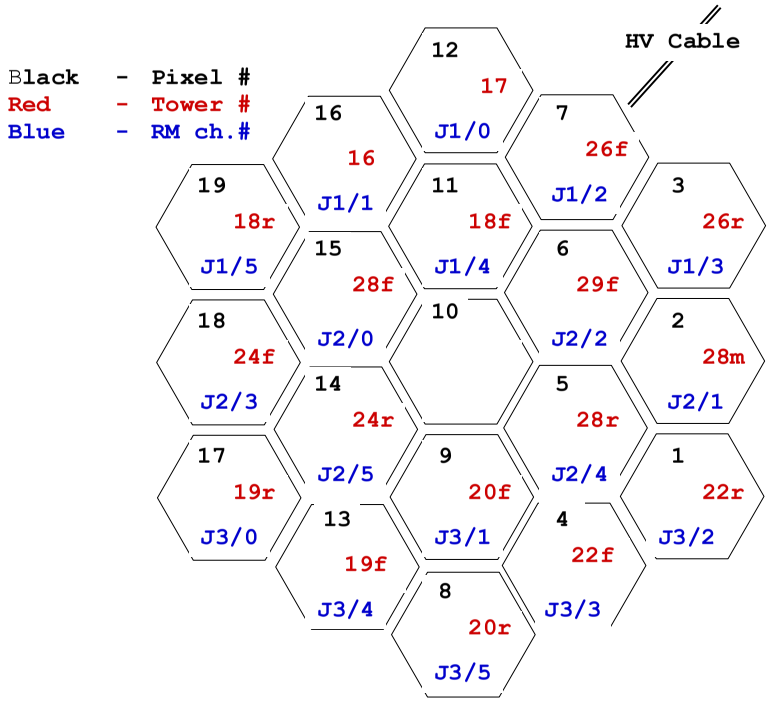
GOL Data Format.

	D(31:30)	D(29:25)	D(24)	D(23:22)	D(21:17)	D(16)	D(15:14)	D(13:9)	D(8:7)	D(6:5)	D(4:3)	D(2)	D(1)	D(0)
Optical Cable 1	QIE 0 Exp (1:0)	QIE 0 Mant (4:0)	Bzero	QIE 1 Exp (1:0)	QIE 1 Mant (4:0)	"0"	QIE 2 Exp (1:0)	QIE 2 Mant (4:0)	QIE 0 CapID(1:0)	QIE 1 CapID(1:0)	QIE 2 CapID(1:0)	Data Flag=1	Control Flag=0	"1"
Optical Cable 2	QIE 4 Exp (1:0)	QIE 4 Mant (4:0)	Bzero	QIE 5 Exp (1:0)	QIE 5 Mant (4:0)	"0"	QIE 3 Exp (1:0)	QIE 3 Mant (4:0)	QIE 4 CapID(1:0)	QIE 5 CapID(1:0)	QIE 3 CapID(1:0)	Data Flag=1	Control Flag=0	"1"
						FE DATA FORMAT								

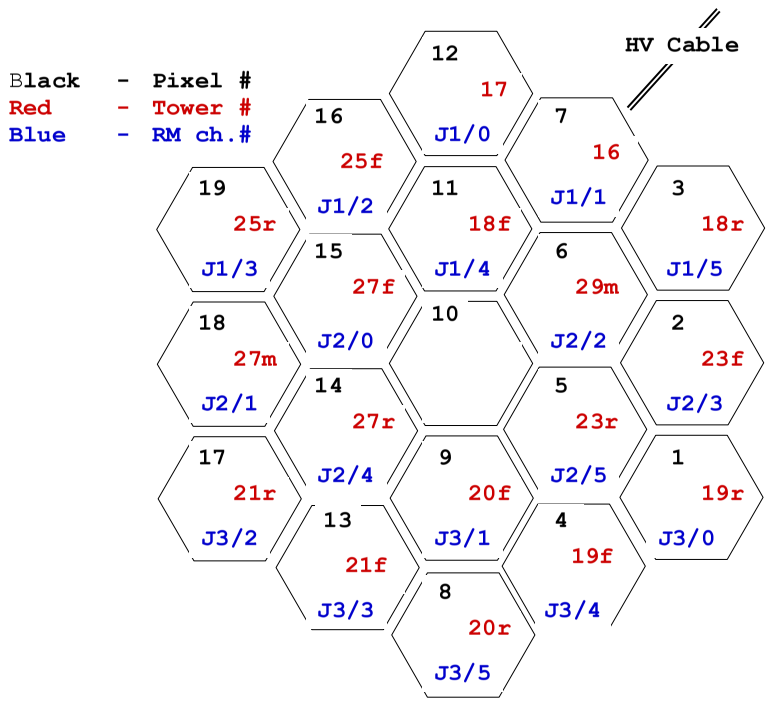
Digital Fiber #	Towers	
	HE RM1, 4	HE RM2, 3
1	17, 16, 26f	17, 16, 25f
2	18f, 18r, 26r	18f, 18r, 25r
3	28f, 28m, 29f	27f, 27m, 29m
4	28r, 24r, 24f	27r, 23r, 23f
5	19r, 20f, 22r	19r, 20f, 21r
6	19f, 20r, 22f	19f, 20r, 21f

f – front section; r – rear section

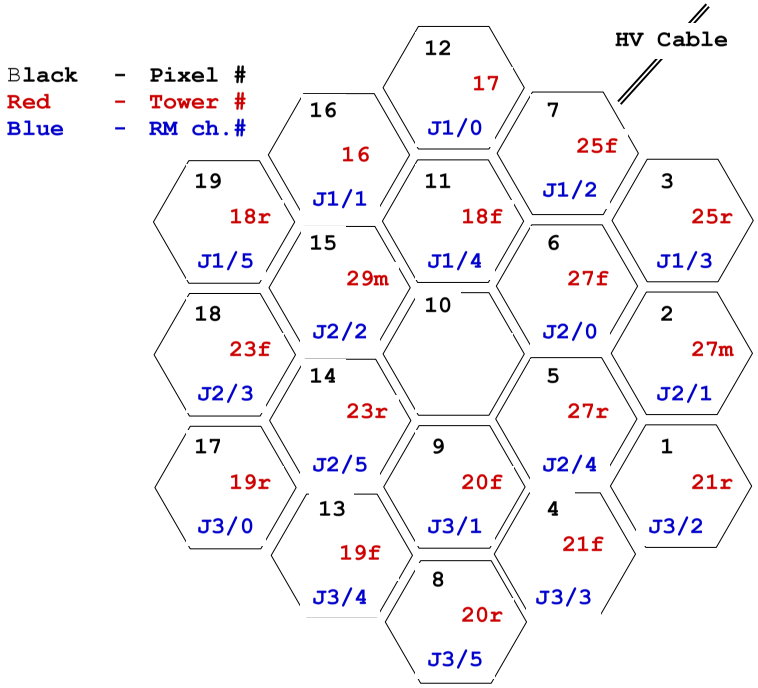
HE/RM1, HPD, Rear View



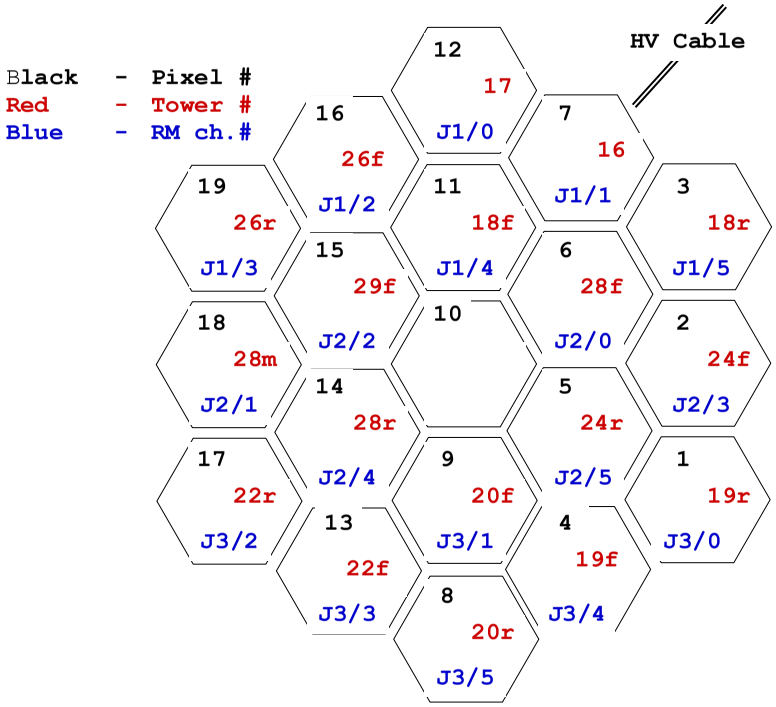
HE/RM2, HPD, Rear View



HE/RM3, HPD, Rear View



HE/RM4, HPD, Rear View



HE_HPD_1 Connection Map.

RM Ch. #	IntCard Connector Contact #	Tower #	ZIF Socket Pin #	HPD Pixel #	HTR Ch.#
0	J1/4	17	G1	12	1
1	J1/8	16	C2	16	2
2	J1/12	26f	P2	7	3
3	J1/16	26r	R4	3	6
4	J1/20	18f	G2	11	4
5	J1/24	18r	A4	19	5
6	J2/4	28f	B5	15	7
7	J2/8	28m	R8	2	8
8	J2/12	29f	Q5	6	9
9	J2/16	24f	A8	18	12
10	J2/20	28r	Q12	5	10
11	J2/24	24r	B12	14	11
12	J3/4	19r	A13	17	13
13	J3/8	20f	L15	9	14
14	J3/12	22r	R13	1	15
15	J3/16	22f	P15	4	18
16	J3/20	19f	C15	13	16
17	J3/24	20r	L16	8	17

Mapping checked (pixel-HTR Ch.#) 03/12/2003, A. Ronzhin & S. Los

HE_HPD_2 Connection Map.

RM Ch. #	IntCard Connector Contact #	Tower #	ZIF Socket Pin #	HPD Pixel #	HTR Ch.#
0	J1/4	17	G1	12	1
1	J1/8	16	P2	7	2
2	J1/12	25f	C2	16	3
3	J1/16	25r	A4	19	6
4	J1/20	18f	G2	11	4
5	J1/24	18r	R4	3	5
6	J2/4	27f	B5	15	7
7	J2/8	27m	A8	18	8
8	J2/12	29m	Q5	6	9
9	J2/16	23f	R8	2	12
10	J2/20	27r	B12	14	10
11	J2/24	23r	Q12	5	11
12	J3/4	19r	R13	1	13
13	J3/8	20f	L15	9	14
14	J3/12	21r	A13	17	15
15	J3/16	21f	C15	13	18
16	J3/20	19f	P15	4	16
17	J3/24	20r	L16	8	17

Interface Card Signal Connector contacts
2, 6, 10, 14, 18, 22 are connected through 15 pf capacitors to ground.
Pixel 10 (ZIF socket F1) is connected to ground via a 10 Mohm resistor.
There is a 10 nf bypass capacitor next to each bias voltage contact (8 total).

HE_HPD_3 Connection Map.

RM Ch. #	IntCard Connector Contact #	Tower #	ZIF Socket Pin #	HPD Pixel #	HTR Ch.#
0	J1/4	17	G1	12	1
1	J1/8	16	C2	16	2
2	J1/12	25f	P2	7	3
3	J1/16	25r	R4	3	6
4	J1/20	18f	G2	11	4
5	J1/24	18r	A4	19	5
6	J2/4	27f	Q5	6	7
7	J2/8	27m	R8	2	8
8	J2/12	29m	B5	15	9
9	J2/16	23f	A8	18	12
10	J2/20	27r	Q12	5	10
11	J2/24	23r	B12	14	11
12	J3/4	19r	A13	17	13
13	J3/8	20f	L15	9	14
14	J3/12	21r	R13	1	15
15	J3/16	21f	P15	4	18
16	J3/20	19f	C15	13	16
17	J3/24	20r	L16	8	17

HE_HPD_4 Connection Map.

RM Ch. #	IntCard Connector Contact #	Tower #	ZIF Socket Pin #	HPD Pixel #	HTR Ch.#
0	J1/4	17	G1	12	1
1	J1/8	16	P2	7	2
2	J1/12	26f	C2	16	3
3	J1/16	26r	A4	19	6
4	J1/20	18f	G2	11	4
5	J1/24	18r	R4	3	5
6	J2/4	28f	Q5	6	7
7	J2/8	28m	A8	18	8
8	J2/12	29f	B5	15	9
9	J2/16	24f	R8	2	12
10	J2/20	28r	B12	14	10
11	J2/24	24r	Q12	5	11
12	J3/4	19r	R13	1	13
13	J3/8	20f	L15	9	14
14	J3/12	22r	A13	17	15
15	J3/16	22f	C15	13	18
16	J3/20	19f	P15	4	16
17	J3/24	20r	L16	8	17

Interface Card Signal Connector contacts
2, 6, 10, 14, 18, 22 are connected through 15 pf capacitors to ground.
Pixel 10 (ZIF socket F1) is connected to ground via a 10 Mohm resistor.
There is a 10 nf bypass capacitor next to each bias voltage contact (8 total).