## **Default Bus Connectors**

First 104 pins follow pumpkin CSK bus (Rev E) pins Some user and IO pins have been assigned by SLI ( that are not used by any other peripherials )

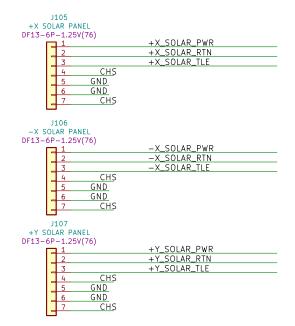
PCB BOTTOM J200_2 PCB TOP	J200_4	J200_6	J200_8
HSEC8-160-01-S-DV-A-K-TR	HSEC8-160-01-S-DV-A-K-TR	HSEC8-160-01-S-DV-A-K-TR	HSEC8-160-01-S-DV-A-K-TR
	SEP1         1         2         SEP2           -Z_SOLAR_TLE         3         4         +X_SOLAR_TLE	SEP1 1 2 SEP2  -Z_SOLAR_TLE 3 4 +X_SOLAR_TLE	SEP1
$-Z_SOLAR_TILE$ $3$ $4$ $+X_SOLAR_TILE$ $-Z_SOLAR_RTN$ $6$ $+X_SOLAR_RTN$	$-Z_{SOLAR_TILE}$ $\frac{-Z_{SOLAR_TILE}}{6}$ $\frac{-Z_{SOLAR_TILE}}{6}$	-Z_SOLAR_TILE 3 4 +X_SOLAR_TILE -Z_SOLAR_RTN 5 6 +X_SOLAR_RTN	$-Z_SOLAR_TILE$ 3 4 +X_SOLAR_TILE $-Z_SOLAR_RTN$ 5 6 +X_SOLAR_RTN
-Z_SOLAR_PWR 7 8 +X_SOLAR_PWR	-Z_SOLAR_PWR 7 8 +X_SOLAR_PWR	-Z_SOLAR_PWR 7 8 +X_SOLAR_PWR	-Z_SOLAR_PWR 7 8 +X_SOLAR_PWR
H1-1 9 10 H1-2	H1-1 9 10 H1-2	H1-1 9 10 H1-2	H1-1 9 10 H1-2
H2-1 11 12 H2-2	H2-1 11 12 H2-2	H2-1 11 12 H2-2	H2-1 11 12 H2-2
H1-3 13 14 H1-4	H1-3 13 14 H1-4	H1-3 13 14 H1-4	H1-3 13 14 H1-4
H2-3 15 16 H2-4	H2-3 15 16 H2-4	H2-3 15 16 H2-4	H2-3 15 16 H2-4
H1-5 17 18 H1-6	H1-5 17 18 H1-6	H1-5 17 18 H1-6	H1-5 17 18 H1-6
H2-5 19 20 H2-6	H2-5 19 20 H2-6	H2-5 19 20 H2-6	H2-5 19 20 H2-6
H1-7 21 22 H1-8 H2-7 23 24 H2-8	H1-7 21 22 H1-8 H2-7 23 24 H2-8	H1-7 21 22 H1-8 H2-7 23 24 H2-8	H1-7 21 22 H1-8 H2-7 23 24 H2-8
H1-9 25 26 H1-10	H2-7 23 24 H2-8 H1-9 25 26 H1-10	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
H2-9 27 28 H2-10	H2-9 27 28 H2-10	H2-9 27 28 H2-10	H2-9 27 28 H2-10
H1-11 29 30 H1-12	H1-11 29 30 H1-12	H1-11 29 30 H1-12	H1-11 29 30 H1-12
H2-11 31 32 H2-12	H2-11 31 32 H2-12	H2-11 31 32 H2-12	H2-11 31 32 H2-12
H1-13 33 34 H1-14	H1-13 33 34 H1-14	H1-13 33 34 H1-14	H1-13 33 34 H1-14
H2-13 35 36 H2-14	H2-13 35 36 H2-14	H2-13 35 36 H2-14	H2-13 35 36 H2-14
RBF 37 38 H1-16	RBF 37 38 H1-16	RBF 37 38 H1-16	RBF 37 38 H1-16
H2-15 39 40 H2-16 H1-17 41 42 H1-18	H2-15 39 40 H2-16	H2-15 39 40 H2-16 H1-17 41 42 H1-18	H2-15 39 40 H2-16 H1-17 41 42 H1-18
H1-17 41 42 H1-18 H2-17 43 44 H2-18	H1-17 41 42 H1-18 H2-17 43 44 H2-18	H1-17 41 42 H1-18 H2-17 43 44 H2-18	H1-17 41 42 H1-18 H2-17 43 44 H2-18
H1-19 45 46 H1-20	H1-19 45 46 H1-20	H1-19 45 46 H1-20	H1-19 45 46 H1-20
H2-19 47 48 H2-20	H2-19 47 48 H2-20	H2-19 47 48 H2-20	H2-19 47 48 H2-20
H1-21 49 50 H1-22	H1-21 49 50 H1-22	H1-21 49 50 H1-22	H1-21 49 50 H1-22
H2-21 51 52 H2-22	H2-21 51 52 H2-22	H2-21 51 52 H2-22	H2-21 51 52 H2-22
H1-23 53 54 H1-24	H1-23 53 54 H1-24	H1-23 53 54 H1-24	H1-23 53 54 H1-24
H2-23 55 56 H2-24	H2-23 55 56 H2-24	H2-23 55 56 H2-24	H2-23 55 56 H2-24
H1-25 57 58 H1-26	H1-25 57 58 H1-26	H1-25 57 58 H1-26 H2-25 59 60 H2-26	H1-25 57 58 H1-26 60 H2-26
H2-25 59 60 H2-26 H1-27 61 62 H1-28	H2-25 59 60 H2-26 H1-27 61 62 H1-28	H2-25 59 60 H2-26 H1-27 61 62 H1-28	H2-25 59 60 H2-26 H1-27 61 62 H1-28
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{11-27}{12-27}$ $\frac{63}{64}$ $\frac{64}{12-28}$	$\frac{11-27}{11-20}$ $\frac{63}{64}$ $\frac{64}{11-20}$ $\frac{11-20}{11-20}$	$\frac{11-27}{12-27}$ $\frac{11}{63}$ $\frac{102}{64}$ $\frac{11-20}{12-28}$
BUS_RESET 65 66 H1-30	BUS_RESET 65 66 H1-30	BUS_RESET 65 66 H1-30	BUS_RESET 65 66 H1-30
GND 67 68 GND	GND 67 68 GND	GND 67 68 GND	GND 67 68 GND
			H1-31 69 70 5V_USB
AGND 71 72 GND	AGND 71 72 GND	AGND 71 72 GND	AGND 71 72 GND
H1-33 73 74 H1-34 H2-33 75 76 H2-34	H1-33 73 74 H1-34 H2-33 75 76 H2-34	H1-33 73 74 H1-34 H2-33 75 76 H2-34	H1-33 73 74 H1-34 H2-33 75 76 H2-34
H1-35 77 78 H1-36	H1-35 77 78 H1-36	H1-35 77 78 H1-36	H1-35 77 78 H1-36
H2-35 79 80 H2-36	H2-35 79 80 H2-36	H2-35 79 80 H2-36	H2-35 79 80 H2-36
H1-37 81 82 H1-38	H1-37 81 82 H1-38	H1-37 81 82 H1-38	H1-37 81 82 H1-38
H2-37 83 84 H2-38	H2-37 83 84 H2-38	H2-37 83 84 H2-38	H2-37 83 84 H2-38
H1-39 85 86 H1-40	H1-39 85 86 H1-40	H1-39 85 86 H1-40	H1-39 85 86 H1-40
H2-39 87 88 H2-40	H2-39 87 88 H2-40	H2-39 87 88 H2-40	H2-39 87 88 H2-40
H1-41 89 90 H1-42 H2-41 91 92 H2-42	H1-41 89 90 H1-42 H2-41 91 92 H2-42	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	H1-41 89 90 H1-42 H2-41 91 92 H2-42
H2-41 91 92 H2-42 H1-43 93 94 H1-44	H2-41 91 92 H2-42 H1-43 93 94 H1-44	H2-41 91 92 H2-42 H1-43 93 94 H1-44	H2-41 91 92 H2-42 H1-43 93 94 H1-44
H2-43 95 96 H2-44	H2-43 95 96 H2-44	H2-43 95 96 H2-44	H2-43 95 96 H2-44
H1-45 97 98 H1-46	H1-45 97 98 H1-46	H1-45 97 98 H1-46	H1-45 97 98 H1-46
H2-45 99 100 H2-46	H2-45 99 100 H2-46	H2-45 99 100 H2-46	H2-45 99 100 H2-46
SELF_TEST 101 102 USER_1	SELF_TEST 101 102 USER_1	SELF_TEST 101 102 USER_1	SELF_TEST 101 102 USER_1
GND 103 104 GND	GND 103 104 GND	GND 103 104 GND	GND 103 104 GND
USER_2 105 106 USER_3	USER_2 105 106 USER_3	USER_2 105 106 USER_3	USER_2 105 106 USER_3
H2-49 107 108 H2-50 H1-51 109 110 H1-52	H2-49 107 108 H2-50 H1-51 109 110 H1-52	H2-49 107 108 H2-50 H1-51 109 110 H1-52	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
H2-51 111 112 H2-52	H1-51 109 110 H1-52 H2-51 111 112 H2-52	<u>H1-51 109 110 H1-52</u> H2-51 111 112 H2-52	H2-51 109 110 H1-52 H2-51 111 112 H2-52 End of CSK Bus
+Y_SOLAR_TLE 113 114 -X_SOLAR_TLE	+Y_SOLAR_TLE 113 114 -X_SOLAR_TLE	+Y_SOLAR_TLE 113 114 -X_SOLAR_TLE	+Y_SOLAR_TLE 113 114 -X_SOLAR_TLE
+Y_SOLAR_RTN 115 116 -X_SOLAR_RTN	+Y_SOLAR_RTN 115 116 -X_SOLAR_RTN	+Y_SOLAR_RTN 115 116 -X_SOLAR_RTN	+Y_SOLAR_RTN 115 116 -X_SOLAR_RTN
+Y_SOLAR_PWR 117 118 -X_SOLAR_PWR	<u>+Y_SOLAR_PWR 117 118 -X_SOLAR_PWR</u>	+Y_SOLAR_PWR 117 118 -X_SOLAR_PWR	+Y_SOLAR_PWR 117 118 -X_SOLAR_PWR
SEP3 119 120 SEP4	SEP3 119 120 SEP4	SEP3 119 120 SEP4	SEP3 119 120 SEP4

J200_1		00_3	J20		J200_7	
HSEC8-160-01-S-DV-A-K-TR SEP1 2 SEP2	SEP1 HSEC8-160-01	L-S-DV-A-K-TR 2 SEP2	SEP1 HSEC8-160-01	-S-DV-A-K-TR 2 SEP2	HSEC8-160-01-S SEP1 1	
-Z_SOLAR_TLE 3 4 +X_SOLAR_TLE	-Z_SOLAR_TLE 3	4 +X_SOLAR_TLE	-Z_SOLAR_TLE 3	4 +X_SOLAR_TLE	-Z_SOLAR_TLE 3	4 +X_SOLAR_TLE
-Z_SOLAR_RTN 5 6 +X_SOLAR_RTN	-Z_SOLAR_RTN 5	6 +X_SOLAR_RTN	-Z_SOLAR_RTN 5	6 +X_SOLAR_RTN	-Z_SOLAR_RTN 5	6 +X_SOLAR_RTN
-Z_SOLAR_PWR 7 8 +X_SOLAR_PWR	-Z_SOLAR_PWR 7	8 +X_SOLAR_PWR	-Z_SOLAR_PWR 7	8 +X_SOLAR_PWR	-Z_SOLAR_PWR 7	8 +X_SOLAR_PWR
H1-1 9 10 H1-2	H1-1 9	10 H1-2	H1-1 9	10 H1-2		10 H1-2
H2-1 11 12 H2-2	H2-1 11	12 H2-2	H2-1 11	12 H2-2	H2-1 11	12 H2-2
H1-3 13 14 H1-4	H1-3 13	14 H1-4	H1-3 13	14 H1-4		14 H1-4
H2-3 15 16 H2-4	H2-3 15	16 H2-4	H2-3 15	16 H2-4	H2-3 15	16 H2-4
H1-5 17 18 H1-6	H1-5 17	18 H1-6	H1-5 17	18 H1-6		18 H1-6
H2-5 19 20 H2-6	H2-5 19	20 H2-6	H2-5 19	20 H2-6		20 H2-6
H1-7 21 22 H1-8	H1-7 21	22 H1-8	H1-7 21	22 H1-8	H1-7 21	22 H1-8
H2-7 23 24 H2-8	H2-7 23	24 H2-8	H2-7 23	24 H2-8	H2-7 23	24 H2-8
H1-9 25 26 H1-10	H1-9 25	26 H1-10	H1-9 25	<u>26 H1-10</u>	H1-9 25 _	26 H1-10
H2-9 27 28 H2-10	H2-9 27	28 H2-10	H2-9 27		H2-9 27 _	28 H2-10
H1-11 29 30 H1-12	H1-11 29	30 H1-12	H1-11 29	30 H1-12		30 H1-12
H2-11 31 32 H2-12	H2-11 31	32 H2-12	H2-11 31	32 H2-12	H2-11 31	32 H2-12
H1-13 33 34 H1-14	H1-13 33	34 H1-14	H1-13 33	34 H1-14		34 H1-14
H2-13 35 36 H2-14	H2-13 35	36 H2-14	H2-13 35	36 H2-14	H2-13 35	36 H2-14
RBF 37 38 H1-16	RBF 37	38 H1-16	RBF 37	38 H1-16		38 H1-16
H2-15 39 40 H2-16	H2-15 39	40 H2-16	H2-15 39	40 H2-16	H2-15 39	40 H2-16
H1-17 41 42 H1-18	H1-17 41	42 H1-18	H1-17 41	42 H1-18	H1-17 41	42 H1-18
H2-17 43 44 H2-18 H1-19 45 46 H1-20	H2-17 43 H1-19 45	44 H2-18 46 H1-20	H2-17 43 H1-19 45	44 H2-18 46 H1-20	H2-17 43 45 H1-19 45	44 H2-18 46 H1-20
H1-19 45 46 H1-20 H2-19 47 48 H2-20	H2-19 45	48 H2-20	H2-19 45	46 H1-20 48 H2-20		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	H1-21 49	50 H1-22	H1-21 49	50 H1-22	H1-21 49	48 H2-20 50 H1-22
H2-21 51 52 H2-22	H2-21 51	52 H2-22	H2-21 51	52 H2-22	H2-21 51	52 H2-22
H1-23 53 54 H1-24	H1-23 53	54 H1-24	$\frac{H2-21}{H1-23}$ 53	54 H1-24	H1-23 53	54 H1-24
H2-23 55 56 H2-24	H2-23 55	56 H2-24	H2-23 55	56 H2-24		56 H2-24
H1-25 57 58 H1-26	H1-25 57	58 H1-26	H1-25 57	58 H1-26		58 H1-26
H2-25 59 60 H2-26	H2-25 59	60 H2-26	H2-25 59	60 H2-26	H2-25 59	60 H2-26
H1-27 61 62 H1-28	H1-27 61	62 H1-28	H1-27 61	62 H1-28		62 H1-28
H2-27 63 64 H2-28	H2-27 63	64 H2-28	H2-27 63	64 H2-28	H2-27 63	64 H2-28
BUS_RESET 65 66 H1-30	BUS_RESET 65	66 H1-30	BUS_RESET 65	66 H1-30		66 H1-30
GND 67 68 GND	GND 67	68 GND	GND 67	68 GND		68 GND
H1-31 69 70 5V_USB	H1-31 69	70 5V_USB	H1-31 69	70 5V_USB	H1-31 69	70 5V_USB
AGND 71 72 GND	AGND 71	72 GND	AGND 71	72 GND	AGND 71	72 GND
H1-33 73 74 H1-34	H1-33 73	74 H1-34	H1-33 73	74 H1-34	H1-33 73	74 H1-34
H2-33 75 76 H2-34	H2-33 75	76 H2-34	H2-33 75	<u>76 H2-34</u>		76 H2-34
H1-35 77 78 H1-36	H1-35 77		H1-35 77	78 H1-36	H1-35 77	78 H1-36
H2-35 79 80 H2-36	H2-35 79	80 H2-36	H2-35 79	80 H2-36		80 H2-36
H1-37 81 82 H1-38	H1-37 81	82 H1-38	H1-37 81	82 H1 – 38		82 H1-38
H2-37 83 84 H2-38	H2-37 83	84 H2-38	H2-37 83	84 H2-38	H2-37 83	84 H2-38
H1-39 85 86 H1-40	H1-39 85	86 H1-40	H1-39 85	86 H1-40	H1-39 85	86 H1-40
H2-39 87 88 H2-40	H2-39 87	88 H2-40	H2-39 87	88 H2-40	H2-39 87 -	88 H2-40
H1-41 89 90 H1-42 H2-41 91 92 H2-42	H1-41 89 H2-41 91	90 H1-42 92 H2-42	H1-41 89 H2-41 91	90 H1-42 92 H2-42	H1-41 89 H2-41 91	90 H1-42 92 H2-42
	H2-41 91 H1-43 93	92 H2-42 94 H1-44		92 H2-42 94 H1-44		
H1-43 H2-43 95 96 H2-44	H2-43 95	96 H2-44	H1-43 93 H2-43 95	96 H2-44		94 H1-44 96 H2-44
H1-45 97 98 H1-46	H1-45 97	98 H1-46	H1-45 97	98 H1-46		98 H1-46
H2-45 99 100 H2-46	H2-45 97	100 H2-46	H2-45 99	100 H2-46		100 H2-46
SELF_TEST 101 102 USER_1	SELF_TEST 101	100 H2-40 102 USER_1	SELF_TEST 101	102 USER_1		100 112 40 102 USER_1
GND 103 104 GND	GND 103	102 03EK_1	GND 103	104 GND		104 GND
USER_2 105 106 USER_3	USER_2 105	106 USER_3	USER_2 105	106 USER_3		106 USER_3
H2-49 107 108 H2-50	H2-49 107	108 H2-50	H2-49 107	108 H2-50		108 H2-50
H1-51 109 110 H1-52	H1-51 109	110 H1-52	H1-51 109	110 H1-52		110 H1-52
H2-51 111 112 H2-52	H2-51 111	112 H2-52	H2-51 111	112 H2-52		112 H2-52 End of CSK Bus
+Y_SOLAR_TLE 113 114 -X_SOLAR_TLE	+Y_SOLAR_TLE 113	114 -X_SOLAR_TLE	+Y_SOLAR_TLE 113	114 -X_SOLAR_TLE		114 -X_SOLAR_TLE_
+Y_SOLAR_RTN 115 116 -X_SOLAR_RTN	+Y_SOLAR_RTN 115	116 -X_SOLAR_RTN	+Y_SOLAR_RTN 115	116 -X_SOLAR_RTN		116 -X_SOLAR_RTN
+Y_SOLAR_PWR 117 118 -X_SOLAR_PWR	+Y_SOLAR_PWR 117	118 -X_SOLAR_PWR	+Y_SOLAR_PWR 117	118 -X_SOLAR_PWR	+Y_SOLAR_PWR 117	<u>118                                   </u>
SEP3 110 120 SEP/	CED3 110	120 SEP/	CED3 110	120 SEP/	CED3 110	120 SED/

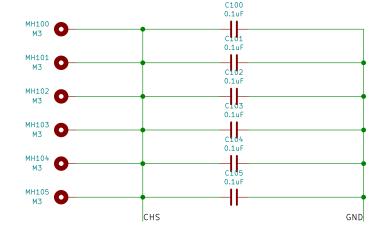
# BACKPLANE CONNECTORS ARE NUMBERED FROM BOTTOM OF STACK CONTACT RATING 2.8A PER PIN

COPPER THICKNESS: 20Z
TRACE WIDTH: 0.5mm VIA SIZE: 0.2mm DRILL, 0.5mm PAD

#### **Solar Connectors**

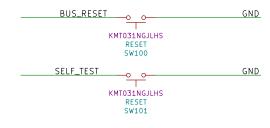


#### Mounting Holes



#### **User Switches**

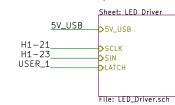
# Configure pin on PPM/Motherboard/mainboard to have an internal pull up for H1—47 (USERO) for SELF\_TEST input.



CHS CHS

### LED Driver

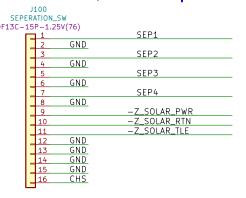
SIN and SCLK are connected to the SD00 and SCKO pins on the bus respectively USER $\_1$  (active high) not only activates the latch on U600-601 but allows serial data to pass to them



CHS, GND Jumper

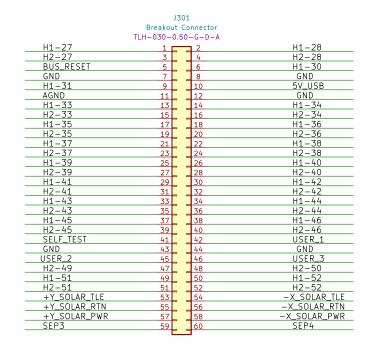


#### Seperation Switches, -Z solar panel Connector



#### **Breakout Connectors**

Breakout Connector									
TLH-030-0.50-G-D-A									
SEP1	1		2 SEP2						
Z_SOLAR_TLE	3		4 +X_SOLAR_TLE						
Z_SOLAR_RTN	5		6 +X_SOLAR_RTN						
Z_SOLAR_PWR	7		8 +X_SOLAR_PWR						
H1-1	9		10 H1-2						
H2-1	11		12 H2-2						
<u>H1-3</u>	13		14 H1-4						
<u>H2-3</u>	15		16 H2-4						
<u>H1-5</u>	17		18 H1-6						
<u>H2-5</u>	19		20 H2-6						
H1-7	21	_ =	22 H1-8						
H2-7	23		24 H2-8						
H1-9	25		26 H1-10						
H2-9	27		28 H2-10						
H1-11	29		30 H1-12						
H2-11	31		32 H2-12						
H1-13	33		34 H1-14						
H2-13	35		36 H2-14						
RBF	37		38 H1-16						
H2-15	39		40 H2-16						
H1-17	41		42 H1-18						
H2-17	43		44 H2-18						
H1-19	45		46 H1-20						
H2-19	47		48 H2-20						
H1-21	49		50 H1-22						
H2-21	51		52 H2-22						
H1-23	53		54 H1-24						
H2-23	55		56 H2-24						
H1-25	57	-	58 H1-26						
H2-25	59	-	60 H2-26						



BACKPLANE BREAKOUT CONNECTOR IS ONLY USED FOR GROUND TESTING CONTACT RATING 2.1A PER PIN TRACE WIDTH: 0.25mm VIA SIZE: 0.2mm DRILL, 0.5mm PAD

Sierra Lobo, Inc.

Sheet: /
File: CubeSat\_Backplane.sch

Title: CubeSat Backplane—SchDoc

Size: C Date: 2021-09-23 Rev: A

KiCad E.D.A. kicad (5.1.10)-1 Id: 1/2

