Harness 1 - MPI 12V Power

OBC - J4 (MPI Power)				EPS - J10 VD3_OBC[0]	
Picoblade	4-pin			Microlock	4-pin

		4x	200.0 mm	
OBC - J4 (MPI Power):1:12V_MPI	1:VT	EPS - J10 VD3_OBC[0]:4:VD3_OBC(0)		

OBC - J4 (MPI Power)		Harness 1 wire		EPS - J10 VD3_OBC[0]	
12V_MPI	1	OBC - J4 (MPI Power):1:12V_MPI 1:VT EPS - J10 VD3_OBC[0]:4:VD3_OBC(0)		4	VD3_OBC(0)
12V_MPI	2	OBC - J4 (MPI Power):2:12V_MPI 2:BK EPS - J10 VD3_OBC[0]:3:VD3_OBC(0)		3	VD3_OBC(0)
GND	3	OBC - J4 (MPI Power):3:GND 3:OG EPS - J10 VD3_OBC[0]:2:GND		2	GND
GND	4	OBC - J4 (MPI Power):4:GND 4:YE EPS - J10 VD3_OBC[0]:1:GND		1	GND

Harness 2 - Boom Burnwire Power

Burnwire PCB - J2		5x		EPS - VD3_OBC[1]	
6-pin				8-pin	
VDC	1	Burnwire PCB - J2:1:VDC 1 EPS - VD3_OBC[1]:1:VD3_OBC(1)		1	VD3_OBC(1)
VDC	2	Burnwire PCB - J2:2:VDC 2 EPS - VD3_OBC[1]:2:VD3_OBC(1)		2	VD3_OBC(1)
VDC	3	Burnwire PCB - J2:4:GND 3 EPS - VD3_OBC[1]:3:GND		3	GND
GND	4	Burnwire PCB - J2:5:GND 4 EPS - VD3_OBC[1]:5:GND		4	GND
GND	5	Burnwire PCB - J2:6:GND 5 EPS - VD3_OBC[1]:7:GND		5	GND
GND	6			6	I2C_SCL
				7	GND
				8	I2C_SDA

Harness 3 - Boom Burn Wire to OBC
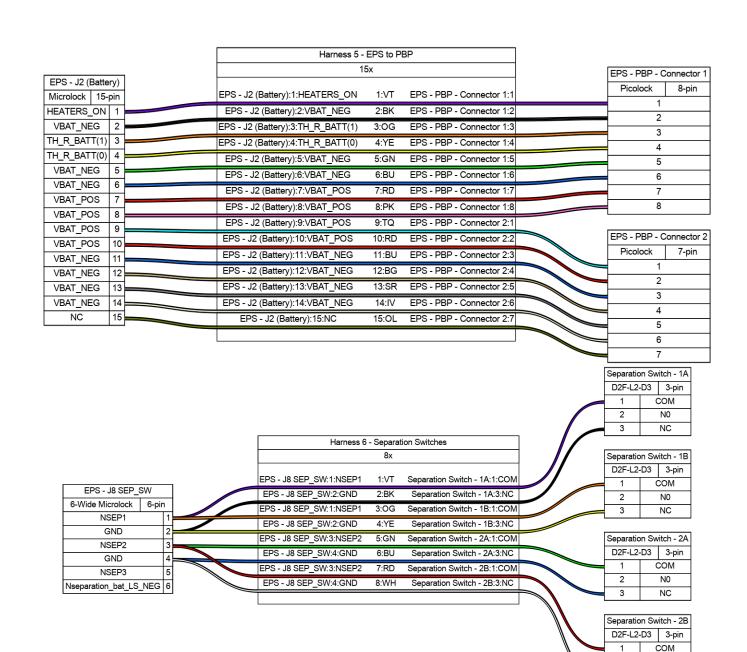
OBC - J8 (BW)		4x		Burnwire PCB - J1	
Picoblade	4-pin			4-pin	
BOOM_CTRL_1	1	OBC - J8 (BW):1:BOOM_CTRL_1 1 Burnwire PCB - J1:3:BOOM_CTRL_1		1	GND
GND	2	OBC - J8 (BW):2:GND 2 Burnwire PCB - J1:1:GND		2	GND
BOOM_CTRL_2	3	OBC - J8 (BW):3:BOOM_CTRL_2 3 Burnwire PCB - J1:4:BOOM_CTRL_2		3	BOOM_CTRL_1
GND	4	OBC - J8 (BW):4:GND 4 Burnwire PCB - J1:2:GND		4	BOOM_CTRL_2

Harness 4 - COTS Solar Panel PWR

COTS Solar Panel PWR-1		
Picoblade	2-pin	
V+ (Solar Cell P junction)	1	
V- (GND)	2	

COTS Solar Panel PWR-2		
Picoblade	2-pin	
V+ (Solar Cell P junction)	1	
V- (GND)	2	

Harness 4 - COTS Solar Panel PWR (4x)

COTS Solar Panel PWR-1:1:V+ (Solar Cell P junction)	1	EPS - J11_CH0, J11_CH1, J11_CH2, J303:2:SP+	
COTS Solar Panel PWR-1:2:V- (GND)	2	EPS - J11_CH0, J11_CH1, J11_CH2, J303:3:GND	
COTS Solar Panel PWR-2:1:V+ (Solar Cell P junction)	3	EPS - J11_CH0, J11_CH1, J11_CH2, J303:6:SP+	
COTS Solar Panel PWR-2:2:V- (GND)	4	EPS - J11_CH0, J11_CH1, J11_CH2, J303:7:GND	

EPS - J11_CH0, J11_CH1, J11_CH2, J303	
Picolock	8-pin
1	SP+
2	SP+
3	GND
4	GND
5	SP+
6	SP+
7	GND
8	GND

Harness 5 - EPS to PBP

EPS - J2 (Battery)	
Microlock	15-pin
HEATERS_ON	1
VBAT_NEG	2
TH_R_BATT(1)	3
TH_R_BATT(0)	4
VBAT_NEG	5
VBAT_NEG	6
VBAT_POS	7
VBAT_POS	8
VBAT_POS	9
VBAT_POS	10
VBAT_NEG	11
VBAT_NEG	12
VBAT_NEG	13
VBAT_NEG	14
NC	15

Harness 5 - EPS to PBP (15x)

EPS - J2 (Battery):1:HEATERS_ON	1:VT	EPS - PBP - Connector 1:1
EPS - J2 (Battery):2:VBAT_NEG	2:BK	EPS - PBP - Connector 1:2
EPS - J2 (Battery):3:TH_R_BATT(1)	3:OG	EPS - PBP - Connector 1:3
EPS - J2 (Battery):4:TH_R_BATT(0)	4:YE	EPS - PBP - Connector 1:4
EPS - J2 (Battery):5:VBAT_NEG	5:GN	EPS - PBP - Connector 1:5
EPS - J2 (Battery):6:VBAT_NEG	6:BU	EPS - PBP - Connector 1:6
EPS - J2 (Battery):7:VBAT_POS	7:RD	EPS - PBP - Connector 1:7
EPS - J2 (Battery):8:VBAT_POS	8:PK	EPS - PBP - Connector 1:8
EPS - J2 (Battery):9:VBAT_POS	9:TQ	EPS - PBP - Connector 2:1
EPS - J2 (Battery):10:VBAT_POS	10:RD	EPS - PBP - Connector 2:2
EPS - J2 (Battery):11:VBAT_NEG	11:BU	EPS - PBP - Connector 2:3
EPS - J2 (Battery):12:VBAT_NEG	12:BG	EPS - PBP - Connector 2:4
EPS - J2 (Battery):13:VBAT_NEG	13:SR	EPS - PBP - Connector 2:5
EPS - J2 (Battery):14:VBAT_NEG	14:IV	EPS - PBP - Connector 2:6
EPS - J2 (Battery):15:NC	15:OL	EPS - PBP - Connector 2:7

EPS - PBP - Connector 1	
Picolock	8-pin
1	
2	
3	
4	
5	
6	
7	
8	

EPS - PBP - Connector 2	
Picolock	7-pin
1	
2	
3	
4	
5	
6	
7	

Harness 6 - Separation Switches

EPS - J8 SEP_SW		
6-Wide Microlock	6-pin	
NSEP1	1	
GND	2	
NSEP2	3	
GND	4	
NSEP3	5	
Nseparation_bat_LS_NEG	6	

Harness 6 - Separation Switches (8x)

EPS - J8 SEP_SW:1:NSEP1	1:VT	Separation Switch - 1A:1:COM
EPS - J8 SEP_SW:2:GND	2:BK	Separation Switch - 1A:3:NC
EPS - J8 SEP_SW:1:NSEP1	3:OG	Separation Switch - 1B:1:COM
EPS - J8 SEP_SW:2:GND	4:YE	Separation Switch - 1B:3:NC
EPS - J8 SEP_SW:3:NSEP2	5:GN	Separation Switch - 2A:1:COM
EPS - J8 SEP_SW:4:GND	6:BU	Separation Switch - 2A:3:NC
EPS - J8 SEP_SW:3:NSEP2	7:RD	Separation Switch - 2B:1:COM
EPS - J8 SEP_SW:4:GND	8:WH	Separation Switch - 2B:3:NC

Separation Switch - 1A	
D2F-L2-D3	3-pin
1	COM
2	N0
3	NC

Separation Switch - 1B	
D2F-L2-D3	3-pin
1	COM
2	N0
3	NC

Separation Switch - 2A	
D2F-L2-D3	3-pin
1	COM
2	N0
3	NC

Separation Switch - 2B	
D2F-L2-D3	3-pin
1	COM
2	N0
3	NC

Harness 7 - GNSS Connector

OBC - J3 (GPS)			Harness 7 - GNSS Connector			GNSS via DMC3 P1	
Picoblade	8-pin		8x			Picoblade	8-pin
NC	1	OBC - J3 (GPS):1:NC	1	GNSS via DMC3 P1:1:NC		1	NC
NC	2	OBC - J3 (GPS):2:NC	2	GNSS via DMC3 P1:2:NC		2	NC
MOSI_USART3_TX	3	OBC - J3 (GPS):3:MOSI_USART3_TX	3	GNSS via DMC3 P1:4:UART1 TX (MOSI)		3	UART1 RX (MISO)
MISO_USART3_RX	4	OBC - J3 (GPS):4:MISO_USART3_RX	4	GNSS via DMC3 P1:3:UART1 RX (MISO)		4	UART1 TX (MOSI)
NC	5	OBC - J3 (GPS):5:NC	5	GNSS via DMC3 P1:5:AUX 1		5	AUX 1
NC	6	OBC - J3 (GPS):6:NC	6	GNSS via DMC3 P1:6:AUX 2		6	AUX 2
GPS_PPS	7	OBC - J3 (GPS):7:GPS_PPS	7	GNSS via DMC3 P1:7:AUX 3 (PPS)		7	AUX 3 (PPS)
NC	8	OBC - J3 (GPS):8:NC	8	GNSS via DMC3 P1:8:AUX 4		8	AUX 4

Harness 8 - MPI Connector
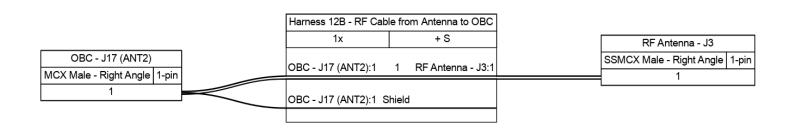
OBC - J10 (MPI)			Harness 8 - MPI Connector			MPI Connector	
Picoblade	10-pin		9x			2.54mm Header	10-pin
12V_MPI	1	OBC - J10 (MPI):1:12V_MPI	1:VT	MPI Connector:10:12V_MPI		10	12V_MPI
12V_MPI	2	OBC - J10 (MPI):2:12V_MPI	2:BK	MPI Connector:9:12V_MPI		9	12V_MPI
GND	3	OBC - J10 (MPI):3:GND	3:OG	MPI Connector:8:GND		8	GND
5V	4	OBC - J10 (MPI):4:5V	4:YE	MPI Connector:7:5V		7	5V
GND	5	OBC - J10 (MPI):5:GND	5:GN	MPI Connector:6:GND		6	GND
MOSI_TX_P	6	OBC - J10 (MPI):6:MOSI_TX_P	6:BU	MPI Connector:3:RI		5	DO
MOSI_TX_N	7	OBC - J10 (MPI):7:MOSI_TX_N	7:RD	MPI Connector:2:RI*		4	DO*
MISO_RX_P	8	OBC - J10 (MPI):8:MISO_RX_P	8:PK	MPI Connector:5:DO		3	RI
MISO_RX_N	9	OBC - J10 (MPI):9:MISO_RX_N	9:TQ	MPI Connector:4:DO*		2	RI*
NC	10					1	NC

Harness 9 - Camera Connector
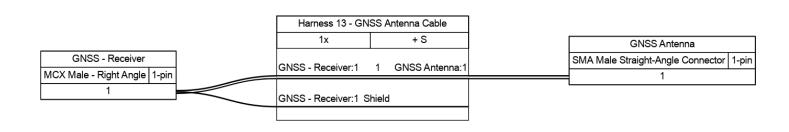
OBC - J7 (Camera)			Harness 9 - Camera Connector			Camera	
Picoblade	6-pin		6x	250.0 mm		Picoblade	6-pin
3V3_CAM	1	OBC - J7 (Camera):1:3V3_CAM	1:VT	Camera:1:VDD		1	VDD
CAM_EN	2	OBC - J7 (Camera):2:CAM_EN	2:BK	Camera:2:ON		2	ON
MOSI_UART4_TX	3	OBC - J7 (Camera):3:MOSI_UART4_TX	3:OG	Camera:3:RXD		3	RXD
MISO_UART4_RX	4	OBC - J7 (Camera):4:MISO_UART4_RX	4:YE	Camera:4:TXD		4	TXD
NC	5	OBC - J7 (Camera):5:NC	5:GN	Camera:5:FLASH		5	FLASH
GND	6	OBC - J7 (Camera):6:GND	6:BU	Camera:6:GND		6	GND
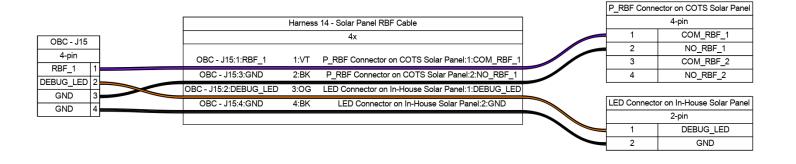
Harness 10 - Antenna Deployment Connector

OBC - J13 (Antenna)					UHF Antenna	
Picoblade	10-pin				Omnetics A28000-009	9-pin
3V3_ANT_DEPLOY	1	OBC - J13 (Antenna):1:3V3_ANT_DEPLOY	1:VT	UHF Antenna:1:VCC	1	VCC
12C2_SDA	2	OBC - J13 (Antenna):2:12C2_SDA	2:BK	UHF Antenna:2:SDA_A	2	SDA_A
GND	3	OBC - J13 (Antenna):3:GND	3:OG	UHF Antenna:3:GND	3	GND
12C3_SDA	4	OBC - J13 (Antenna):4:12C3_SDA	4:YE	UHF Antenna:4:SDA_B	4	SDA_B
GND	5	OBC - J13 (Antenna):5:GND	5:GN	UHF Antenna:5:GND	5	GND
3V3_ANT_DEPLOY	6	OBC - J13 (Antenna):6:3V3_ANT_DEPLOY	6:BU	UHF Antenna:6:VCC	6	VCC
12C2_SCL	7	OBC - J13 (Antenna):7:12C2_SCL	7:RD	UHF Antenna:7:SCL_A	7	SCL_A
12C3_SCL	8	OBC - J13 (Antenna):8:12C3_SCL	8:PK	UHF Antenna:8:SCL_B	8	SCL_B
GND	9	OBC - J13 (Antenna):9:GND	9:TQ	UHF Antenna:9:GND	9	GND
NC	10					

Harness 10 - Antenna Deployment Connector — 9x — 250.0 mm

Harness 11 - RF Cable from AX100 to OBC

OBC - J18 (COMS)			AX100 - J4	
MCX Male - Right Angle	1-pin		MCX Male - Right Angle	1-pin
1			1	

Harness 11 - RF Cable from AX100 to OBC — RG-316 — 1x — + S — 150.0 mm

OBC - J18 (COMS):1   1   AX100 - J4:1

OBC - J18 (COMS):1   Shield

Harness 12A - RF Cable from Antenna to OBC

OBC - J20 (ANT1)			RF Antenna - J2	
MCX Male - Right Angle	1-pin		SSMCX Male - Right Angle	1-pin
1			1	

Harness 12A - RF Cable from Antenna to OBC — 1x — + S

OBC - J20 (ANT1):1   1   RF Antenna - J2:1

OBC - J20 (ANT1):1   Shield

Harness 12B - RF Cable from Antenna to OBC

OBC - J17 (ANT2)		
MCX Male - Right Angle	1-pin	
1		

Harness 12B - RF Cable from Antenna to OBC	
1x	+ S
OBC - J17 (ANT2):1 1 RF Antenna - J3:1	
OBC - J17 (ANT2):1 Shield	

RF Antenna - J3	
SSMCX Male - Right Angle	1-pin
1	

Harness 13 - GNSS Antenna Cable

GNSS - Receiver		
MCX Male - Right Angle	1-pin	
1		

Harness 13 - GNSS Antenna Cable	
1x	+ S
GNSS - Receiver:1 1 GNSS Antenna:1	
GNSS - Receiver:1 Shield	

GNSS Antenna	
SMA Male Straight-Angle Connector	1-pin
1	

Harness 14 - Solar Panel RBF Cable

OBC - J15	
4-pin	
RBF_1	1
DEBUG_LED	2
GND	3
GND	4

Harness 14 - Solar Panel RBF Cable		
4x		
OBC - J15:1:RBF_1	1:VT	P_RBF Connector on COTS Solar Panel:1:COM_RBF_1
OBC - J15:3:GND	2:BK	P_RBF Connector on COTS Solar Panel:2:NO_RBF_1
OBC - J15:2:DEBUG_LED	3:OG	LED Connector on In-House Solar Panel:1:DEBUG_LED
OBC - J15:4:GND	4:BK	LED Connector on In-House Solar Panel:2:GND

P_RBF Connector on COTS Solar Panel	
4-pin	
1	COM_RBF_1
2	NO_RBF_1
3	COM_RBF_2
4	NO_RBF_2

LED Connector on In-House Solar Panel	
2-pin	
1	DEBUG_LED
2	GND

EPS - J9 (Umbilical 2)

Microlock	15-pin
RAIL_PWR	1
RAIL_PWR	2
RAIL_PWR	3
RAIL_PWR	4
GND	5
GND	6
GND	7
GND	8
UART_RX_H2_21	9
UART_TX_H2_22	10
I2C_EXT_SCL	11
I2C_EXT_SDA	12
GND	13
UART_TX_3V3_OUT1	14
UART_RX_3V3_IN1	15

Harness 15 - EPS UART to OBC (4x)

EPS - J9 (Umbilical 2):14:UART_TX_3V3_OUT1	1:VT	OBC - J14:1:MISO_UART5_RX
EPS - J9 (Umbilical 2):15:UART_RX_3V3_IN1	2:OG	OBC - J14:2:MOSI_UART5_TX
EPS - J9 (Umbilical 2):7:GND	3:BK	OBC - J14:3:GND
EPS - J9 (Umbilical 2):8:GND	4:BK	OBC - J14:4:GND

OBC - J14

Picoblade	4-pin	
1	MISO_UART5_RX	
2	MOSI_UART5_TX	
3	GND	
4	GND	

EPS - J10 (Umbilical 1)

Microlock	14-pin
GND	1
N_ABF_PLACED_0	2
N_SEPARATION_1	3
N_BAT_ENA_HS	4
N_SEPARATION_2	5
N_SAT_ENA_HS	6
N_SEPARATION_3	7
BAT_ENA_LS_POS	8
BAT_ENA_LS_RBF	9
BAT_ENA_LS_NEG	10
GND	11
GND	12
N_ABF_PLACED_1	13
GND	14

Harness 16 - ABF Connector (Loopback/Pigtail) (5x)

EPS - J10 (Umbilical 1):1:GND	1:RD
EPS - J10 (Umbilical 1):3:N_SEPARATION_1	2:BK
EPS - J10 (Umbilical 1):5:N_SEPARATION_2	3:VT
EPS - J10 (Umbilical 1):7:N_SEPARATION_3	4:OG
EPS - J10 (Umbilical 1):13:N_ABF_PLACED_1	5:BK

OBC - J9 ("UART")

4-pin	
MOSI_TX	1
MISO_RX	2
GND	3
GND	4

Harness 17 - OBC to AX100/DMC3 (2x)

OBC - J9 ("UART"):1:MOSI_TX	1	AX100 via DMC3 P2:1:MOSI_RX
OBC - J9 ("UART"):2:MISO_RX	2	AX100 via DMC3 P2:2:MISO_TX

AX100 via DMC3 P2

8-pin	
1	MOSI_RX
2	MISO_TX
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC

OBC - J12

Picoblade	10-pin
V_BAT	1
GND	2
MISO_LPUART1_RX	3
MOSI_LPUART_TX	4
GND	5
3V3	6
5V	7
GND	8
GND	9
GND	10

Harness 51 - Umbilical

	5x	
OBC - J12:3:MISO_LPUART1_RX	1	USB-to-UART:1:MOSI_TX
OBC - J12:4:MOSI_LPUART_TX	2	USB-to-UART:2:MISO_RX
OBC - J12:5:GND	3	USB-to-UART:3:GND
OBC - J12:6:3V3	4	USB-to-UART:4:5V
OBC - J12:7:5V	5	USB-to-UART:5:3V3

USB-to-UART

	5-pin
1	MOSI_TX
2	MISO_RX
3	GND
4	5V
5	3V3

OBC - J11

Picoblade	6-pin
3V	1
SWCLK	2
GND	3
SWDIO	4
NRST	5
SWO	6

Harness 52 - Programmer Connector

	6x	
OBC - J11:1:3V	1	ST-LINK:7:3V3
OBC - J11:2:SWCLK	2	ST-LINK:2:SWCLK
OBC - J11:3:GND	3	ST-LINK:5:GND
OBC - J11:4:SWDIO	4	ST-LINK:4:SWDIO
OBC - J11:5:NRST	5	ST-LINK:1:RST
	6	

ST-LINK

2.54mm Header	10-pin
1	RST
2	SWCLK
3	SWIM
4	SWDIO
5	GND
6	GND
7	3V3
8	5V
9	5V
10	

EPS - J9 (Umbilical 2)

16-pin	
RAIL_PWR	1
RAIL_PWR	2
RAIL_PWR	3
RAIL_PWR	4
GND	5
GND	6
GND	7
GND	8
UART_RX_H2_21	9
UART_TX_H2_22	10
I2C_EXT_SCL	11
I2C_EXT_SDA	12
GND	13
UART_TX_3V3_OUT1	14
UART_TX_3V3_OUT1	15
UART_RX_3V3_IN1	16

Harness 53 - Umbilical Power Injection to EPS

	6x		
EPS - J9 (Umbilical 2):1:RAIL_PWR	1:RD	Bench Power Supply:1:POSTIVE (+)
EPS - J9 (Umbilical 2):5:GND	2:BK	Bench Power Supply:2:GND (-)
EPS - J9 (Umbilical 2):14:UART_TX_3V3_OUT1	3:VT	OBC - J14:1:MISO_UART5_RX
EPS - J9 (Umbilical 2):15:UART_TX_3V3_OUT1	4:OG	OBC - J14:2:MOSI_UART5_TX
EPS - J9 (Umbilical 2):7:GND	5:BK	OBC - J14:3:GND
EPS - J9 (Umbilical 2):8:GND	6:BK	OBC - J14:4:GND

Bench Power Supply

3-pin	
1	POSTIVE (+)
2	GND (-)
3	COM

OBC - J14

Picoblade	4-pin
1	MISO_UART5_RX
2	MOSI_UART5_TX
3	GND
4	GND

Harness 54 - EPS Separation Switch Cable

Separation Switches		Harness 54 - EPS Separation Switch Cable			EPS - J8	
3-pin		4x			6-Wide Microlock	6-pin
COM	1	Separation Switches:3:NC	1	EPS - J8:1:NSEP1	1	NSEP1
2		Separation Switches:1:COM	2	EPS - J8:2:GND	2	GND
NC	3		3		3	NSEP2
			4		4	GND
					5	NSEP3
					6	Nseparation_bat_LS_NEG

Harness 55 - EPS Solar Panel Charging Cable with 10 Ohm Resistor

EPS - J11_CH0, J11_CH1, J11_CH2, J303		Harness 55 - EPS Solar Panel Charging Cable with 10 Ohm Resistor			Bench Power Supply	
Picolock	8-pin	2x			3-pin	
SP+	1	EPS - J11_CH0, J11_CH1, J11_CH2, J303:1:SP+	1	Bench Power Supply:1:POSTIVE (+)	1	POSTIVE (+)
SP+	2	EPS - J11_CH0, J11_CH1, J11_CH2, J303:3:GND	2	Bench Power Supply:2:GND (-)	2	GND (-)
GND	3				3	COM
GND	4					
SP+	5					
SP+	6					
GND	7					
GND	8					

Harness 56 - New Programmer Connector

OBC - J11		Harness 56 - New Programmer Connector			ST-LINK	
Picoblade	6-pin	6x			2.54mm Header	10-pin
3V	1	OBC - J11:1:3V	1	ST-LINK:7:3V3	1	RST
SWCLK	2	OBC - J11:2:SWCLK	2	ST-LINK:2:SWCLK	2	SWCLK
GND	3	OBC - J11:3:GND	3	ST-LINK:5:GND	3	SWIM
SWDIO	4	OBC - J11:4:SWDIO	4	ST-LINK:4:SWDIO	4	SWDIO
NRST	5	OBC - J11:5:NRST	5	ST-LINK:1:RST	5	GND
SWO	6		6		6	GND
					7	3V3
					8	5V
					9	5V
					10	