Harness 1 - MPI 12V Power

OBC - J4			Harness 1 - MPI 12V Power		EPS - J10 VD3_OBC[0]	
Picoblade	4-pin		4x	200.0 mm	Microlock	4-pin
12V_MPI	1	OBC - J4:1:12V_MPI	1:VT	EPS - J10 VD3_OBC[0]:4:VD3_OBC(0)	4	VD3_OBC(0)
12V_MPI	2	OBC - J4:2:12V_MPI	2:BK	EPS - J10 VD3_OBC[0]:3:VD3_OBC(0)	3	VD3_OBC(0)
GND	3	OBC - J4:3:GND	3:OG	EPS - J10 VD3_OBC[0]:2:GND	2	GND
GND	4	OBC - J4:4:GND	4:YE	EPS - J10 VD3_OBC[0]:1:GND	1	GND

Harness 2 - Boom Burnwire Power

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

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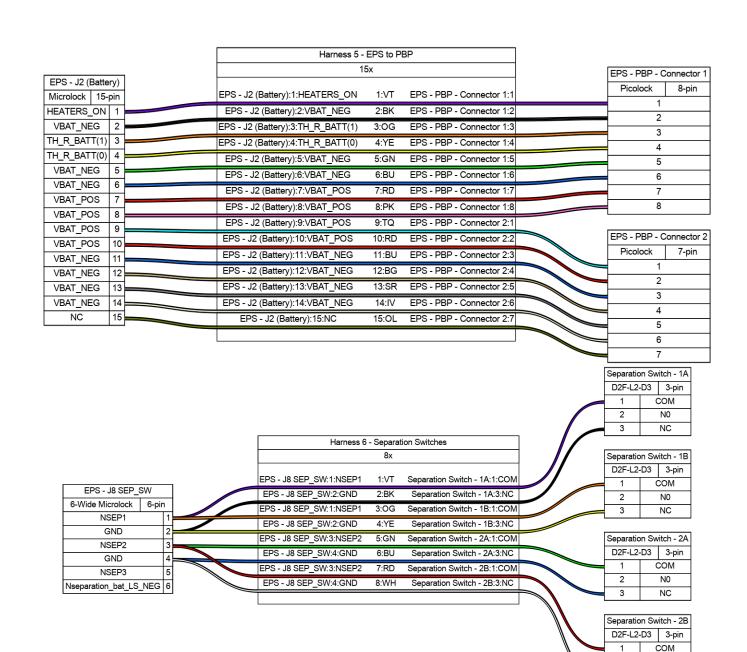
OBC - J8			Harness 3 - Boom Burn Wire to OBC		Burnwire PCB - J1	
Picoblade	4-pin		4x		4-pin	
BOOM_CTRL_1	1	OBC - J8:1:BOOM_CTRL_1	1	Burnwire PCB - J1:3:BOOM_CTRL_1	1	GND
GND	2	OBC - J8:2:GND	2	Burnwire PCB - J1:1:GND	2	GND
BOOM_CTRL_2	3	OBC - J8:3:BOOM_CTRL_2	3	Burnwire PCB - J1:4:BOOM_CTRL_2	3	BOOM_CTRL_1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

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

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	

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		
Picoblade	8-pin	
NC	1	
NC	2	
MOSI_USART3_TX	3	
MISO_USART3_RX	4	
NC	5	
NC	6	
GPS_PPS	7	
NC	8	

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

GNSS via DMC3 P1		
Picoblade	8-pin	
1	NC	
2	NC	
3	UART1 RX (MISO)	
4	UART1 TX (MOSI)	
5	AUX 1	
6	AUX 2	
7	AUX 3 (PPS)	
8	AUX 4	
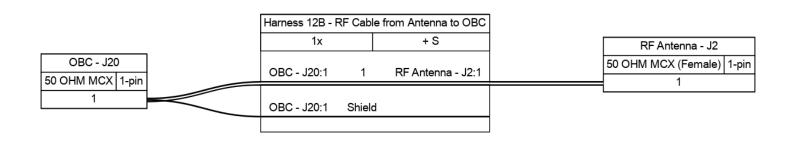
Harness 8 - MPI Connector

OBC - J10		
Picoblade	10-pin	
12V_MPI	1	
12V_MPI	2	
GND	3	
5V	4	
GND	5	
MOSI_TX_P	6	
MOSI_TX_N	7	
MISO_RX_P	8	
MISO_RX_N	9	
NC	10	

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

MPI Connector		
2.54mm Header	10-pin	
10	12V_MPI	
9	12V_MPI	
8	GND	
7	5V	
6	GND	
5	DO	
4	DO*	
3	RI	
2	RI*	
1	NC	

Harness 9 - Camera Connector

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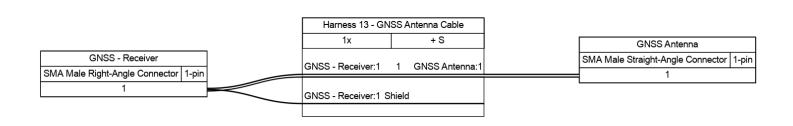
Harness 9 - Camera Connector		
6x	250.0 mm	
OBC - J7:1:3V3_CAM	1:VT	Camera:1:VDD
OBC - J7:2:CAM_EN	2:BK	Camera:2:ON
OBC - J7:3:MOSI_UART4_TX	3:OG	Camera:3:RXD
OBC - J7:4:MISO_UART4_RX	4:YE	Camera:4:TXD
OBC - J7:5:NC	5:GN	Camera:5:FLASH
OBC - J7:6:GND	6:BU	Camera:6:GND

Camera		
Picoblade	6-pin	
1	VDD	
2	ON	
3	RXD	
4	TXD	
5	FLASH	
6	GND	
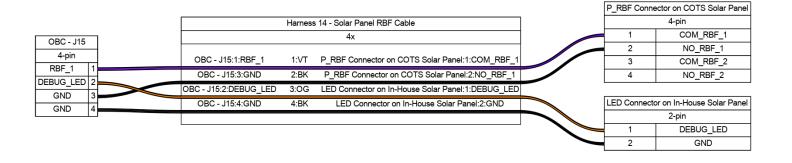
Harness 10 - Antenna Deployment Connector

OBC - J13		
Picoblade	10-pin	
3V3_ANT_DEPLOY	1	
12C2_SDA	2	
GND	3	
12C3_SDA	4	
GND	5	
3V3_ANT_DEPLOY	6	
12C2_SCL	7	
12C3_SCL	8	
GND	9	
NC	10	

Harness 10 - Antenna Deployment Connector		
9x		250.0 mm
OBC - J13:1:3V3_ANT_DEPLOY	1:VT	UHF Antenna:1:VCC
OBC - J13:2:12C2_SDA	2:BK	UHF Antenna:2:SDA_A
OBC - J13:3:GND	3:OG	UHF Antenna:3:GND
OBC - J13:4:12C3_SDA	4:YE	UHF Antenna:4:SDA_B
OBC - J13:5:GND	5:GN	UHF Antenna:5:GND
OBC - J13:6:3V3_ANT_DEPLOY	6:BU	UHF Antenna:6:VCC
OBC - J13:7:12C2_SCL	7:RD	UHF Antenna:7:SCL_A
OBC - J13:8:12C3_SCL	8:PK	UHF Antenna:8:SCL_B
OBC - J13:9:GND	9:TQ	UHF Antenna:9:GND

UHF Antenna		
Omnetics A28000-009	9-pin	
1	VCC	
2	SDA_A	
3	GND	
4	SDA_B	
5	GND	
6	VCC	
7	SCL_A	
8	SCL_B	
9	GND	

Harness 11 - RF Cable from AX100 to OBC

OBC - J18	
50 OHM MCX	1-pin
1	

Harness 11 - RF Cable from AX100 to OBC		
1x		+ S
OBC - J18:1	1	AX100 - J4:1
OBC - J18:1	Shield	

AX100 - J4	
50 OHM MCX	1-pin
1	

Harness 12A - RF Cable from Antenna to OBC

OBC - J17	
50 OHM MCX	1-pin
1	

Harness 12A - RF Cable from Antenna to OBC		
1x		+ S
OBC - J17:1	1	RF Antenna - J3:1
OBC - J17:1	Shield	

RF Antenna - J3	
50 OHM MCX (Female)	1-pin
1	

Harness 12B - RF Cable from Antenna to OBC

1x	+ S
OBC - J20:1 1	RF Antenna - J2:1
OBC - J20:1 Shield	

OBC - J20

50 OHM MCX	1-pin
1	

RF Antenna - J2

50 OHM MCX (Female)	1-pin
1	

Harness 13 - GNSS Antenna Cable

1x	+ S
GNSS - Receiver:1 1	GNSS Antenna:1
GNSS - Receiver:1 Shield	

GNSS - Receiver

SMA Male Right-Angle Connector	1-pin
1	

GNSS Antenna

SMA Male Straight-Angle Connector	1-pin
1	

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

OBC - J15

4-pin	
RBF_1	1
DEBUG_LED	2
GND	3
GND	4

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

Harness 17 - OBC to AX100/DMC3

2x		
OBC:1:MOSI_TX	1	AX100 via DMC3 P2:1:MOSI_RX
OBC:2:MISO_RX	2	AX100 via DMC3 P2:2:MISO_TX

OBC

4-pin	
MOSI_TX	1
MISO_RX	2
GND	3
GND	4

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 - J8

Separation Switches — 3-pin

COM	1
2	
NC	3

Harness 54 - EPS Separation Switch Cable — 4x

Separation Switches:3:NC	1	EPS - J8:1:NSEP1	
Separation Switches:1:COM	2	EPS - J8:2:GND	
3			
4			

EPS - J8 — 6-Wide Microlock, 6-pin

1	NSEP1
2	GND
3	NSEP2
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 — Picolock, 8-pin

SP+	1
SP+	2
GND	3
GND	4
SP+	5
SP+	6
GND	7
GND	8

Harness 55 - EPS Solar Panel Charging Cable with 10 Ohm Resistor — 2x

EPS - J11_CH0, J11_CH1, J11_CH2, J303:1:SP+	1	Bench Power Supply:1:POSTIVE (+)	
EPS - J11_CH0, J11_CH1, J11_CH2, J303:3:GND	2	Bench Power Supply:2:GND (-)	

Bench Power Supply — 3-pin

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

Harness 56 - New Programmer Connector

OBC - J11 — Picoblade, 6-pin

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

Harness 56 - New 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	