

The logo for Elprotronic, featuring the word "Elprotronic" in a stylized, blue, serif font with a white outline, set against a solid blue rectangular background.

Elprotronic

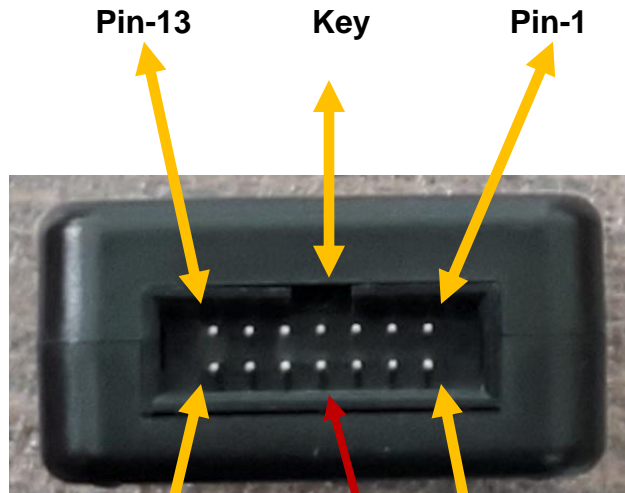
www.elprotronic.com

Connection between targets and Flash and Gang Programmers

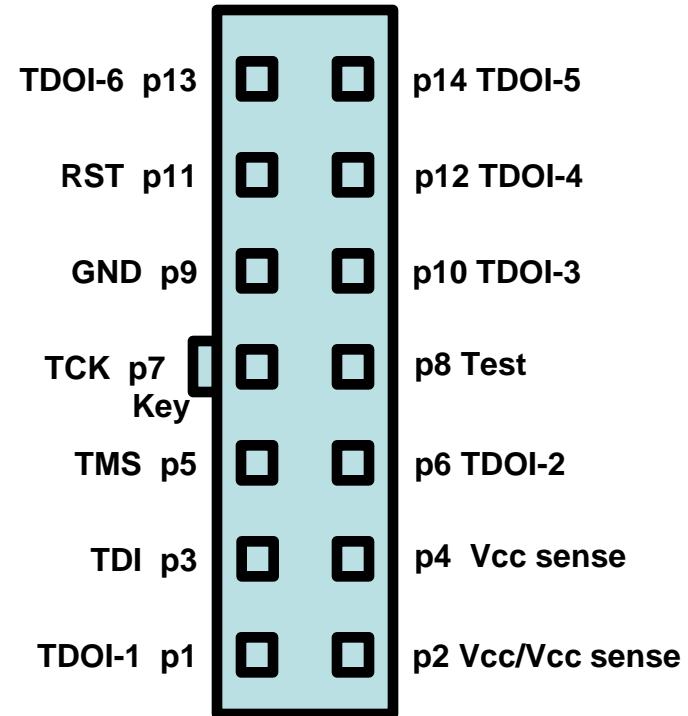
PM037A02 rev. 2.3

March-20-2025

14-pin Connector from Programmer

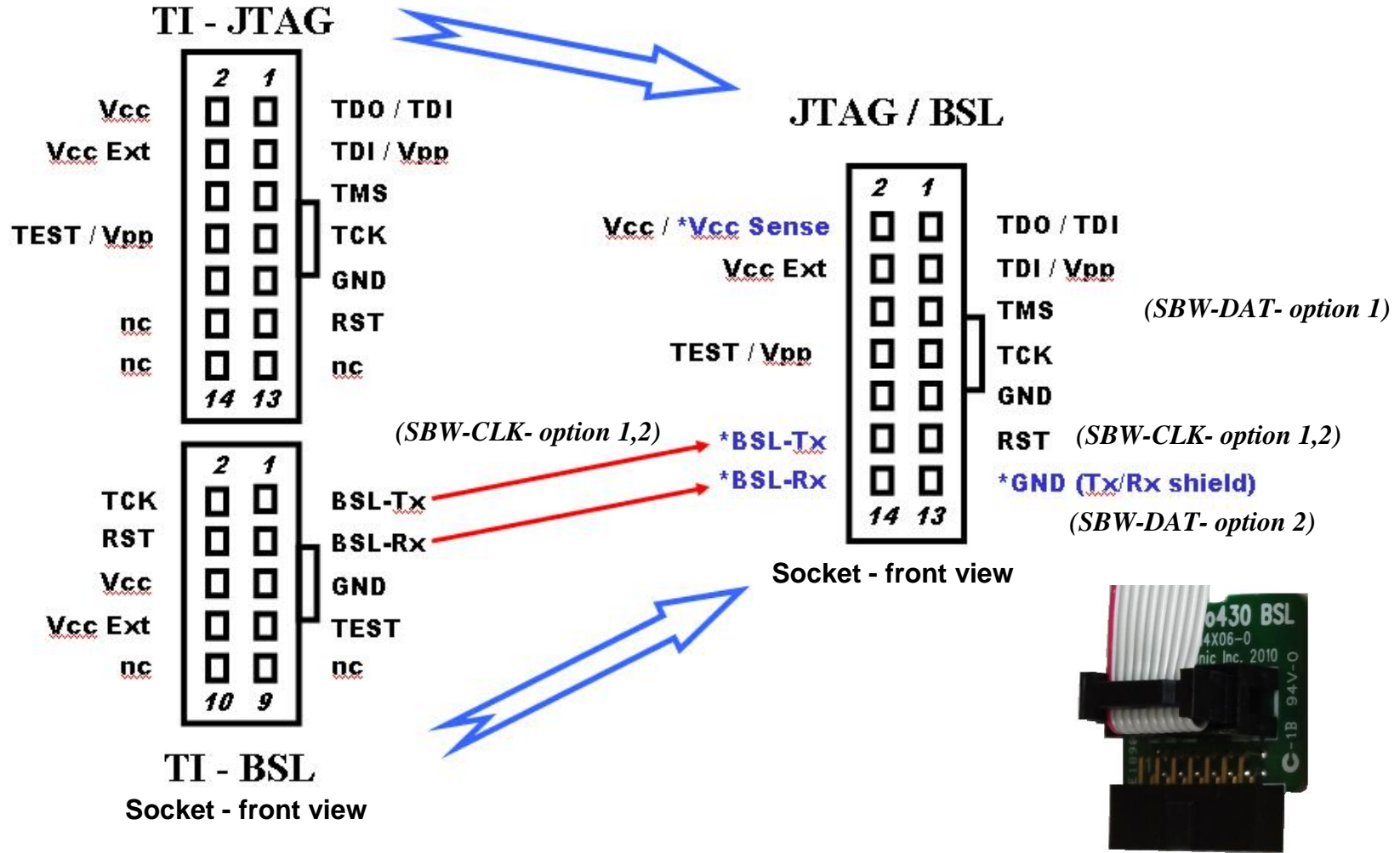


Connector PN:
SBH11-PBPC-D07-RA-BK
(Sullins)



Socket - front view

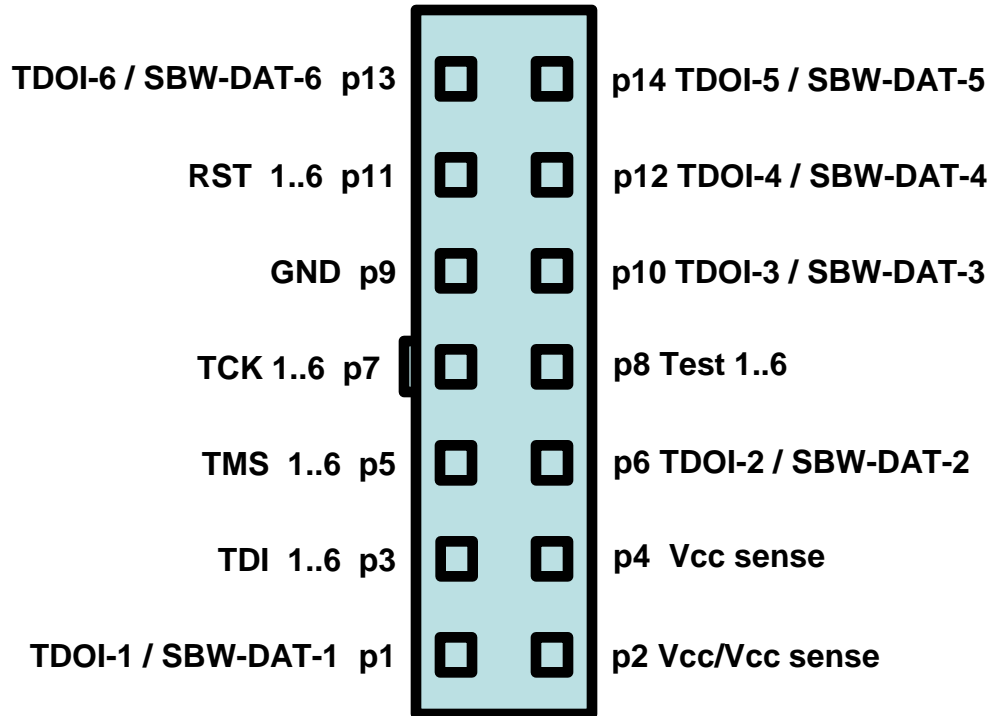
Pinout in FlashPro430



Adapter from 14-pins connection to 10-pins BSL only connection.
PN: PE014X06

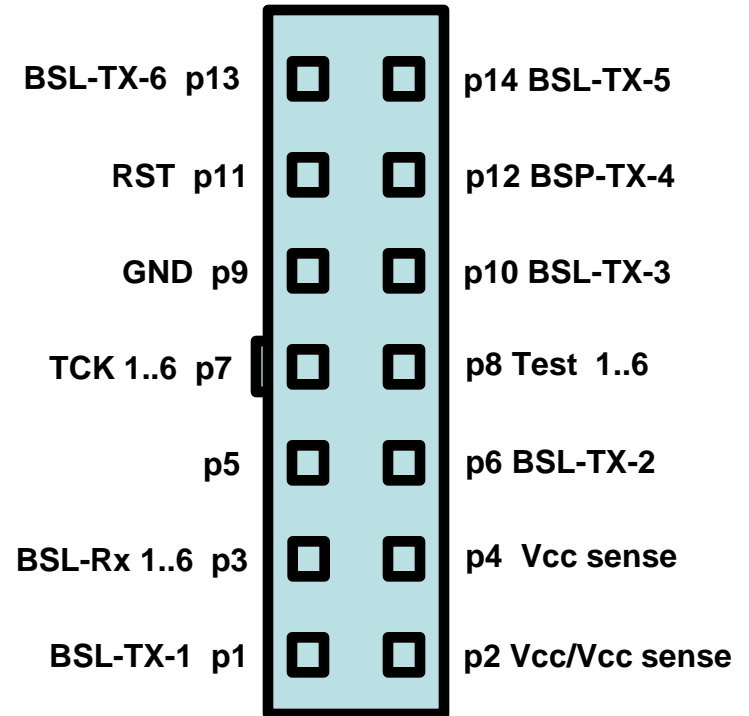
Pinout in GangPro430

JTAG / SBW



Socket - front view

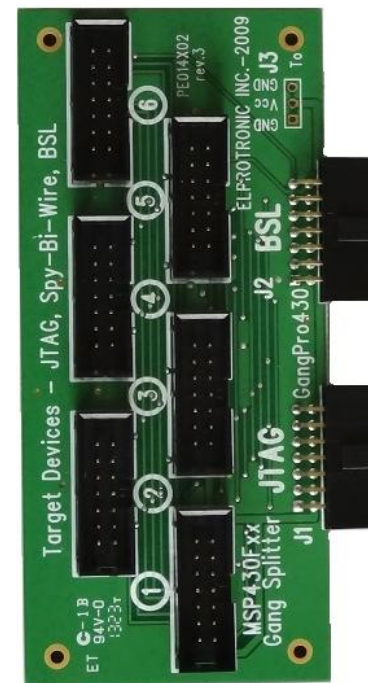
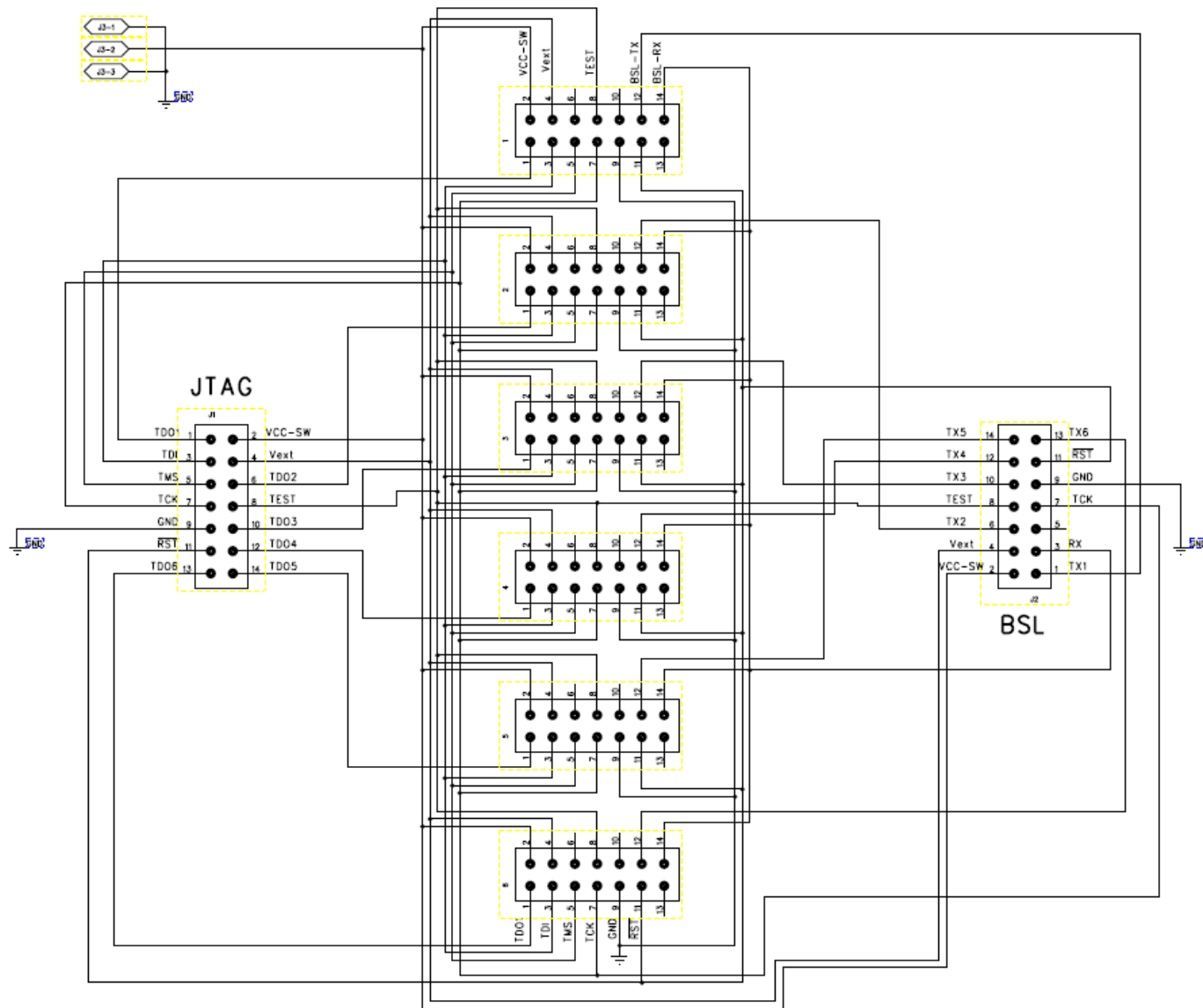
BSL



Socket - front view

Pinout in GangPro430

GangPro430 Splitter PN:PE014X02



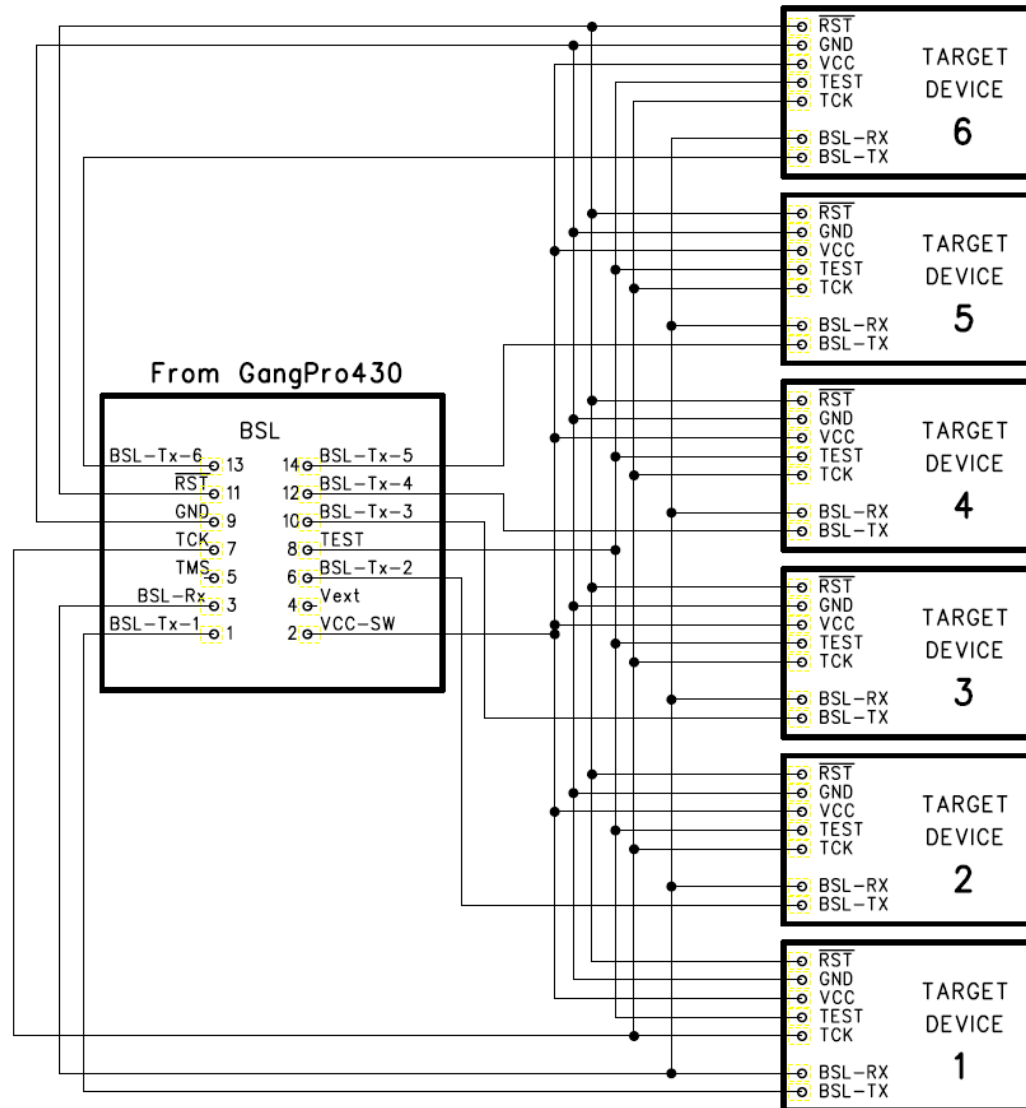
Connector PN:

SBH11-PBPC-D07-ST-BK
(Sullins)

SFH11-PBPC-D07-RA-BK
(Sullins)

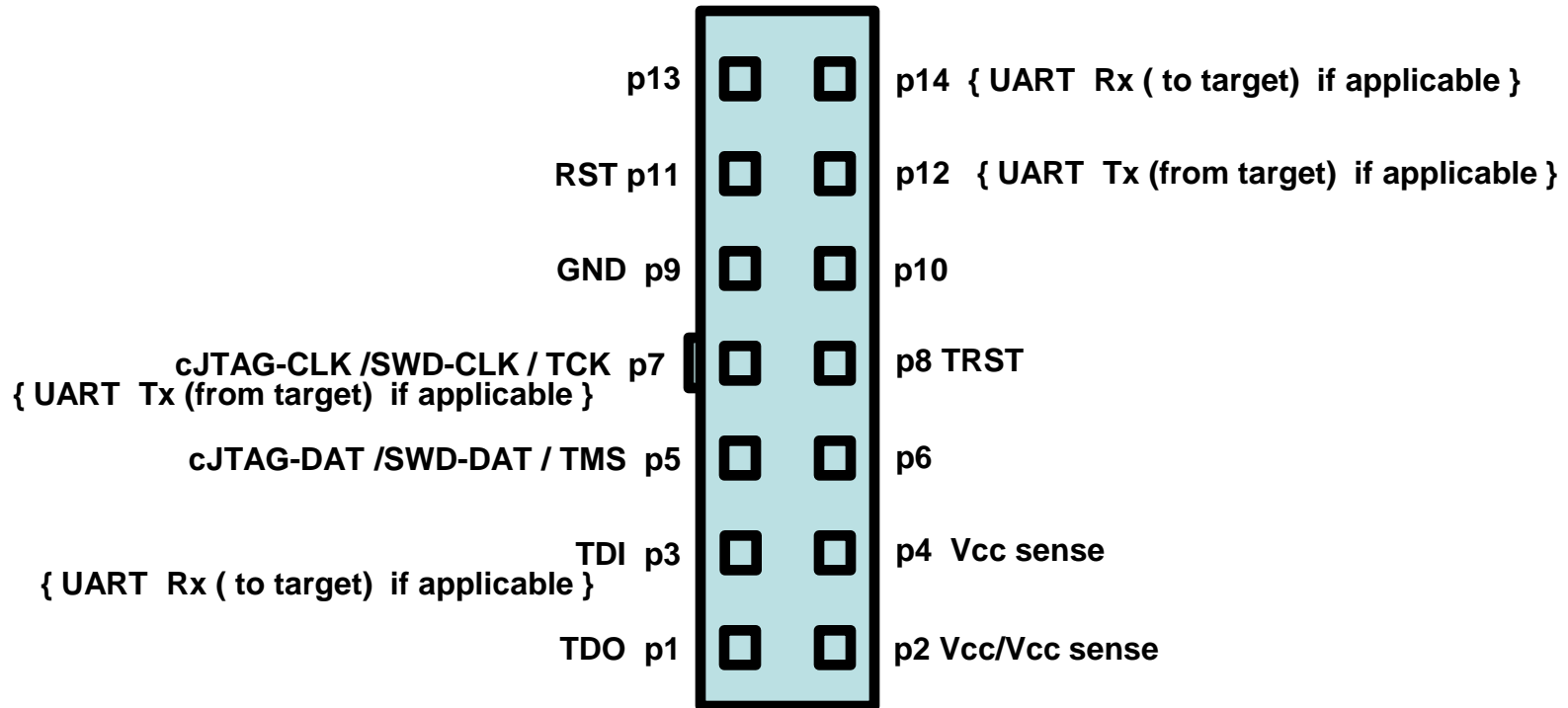
Pinout in GangPro430

BSL with GangPro430 connection



Pinout in FlashPro-ARM

JTAG / SWD



Socket - front view

Pinout in FlashPro-ARM

Adapter 14-pins to ARM 20-pins 0.1" spacing and 10-pins 0.05" spacing

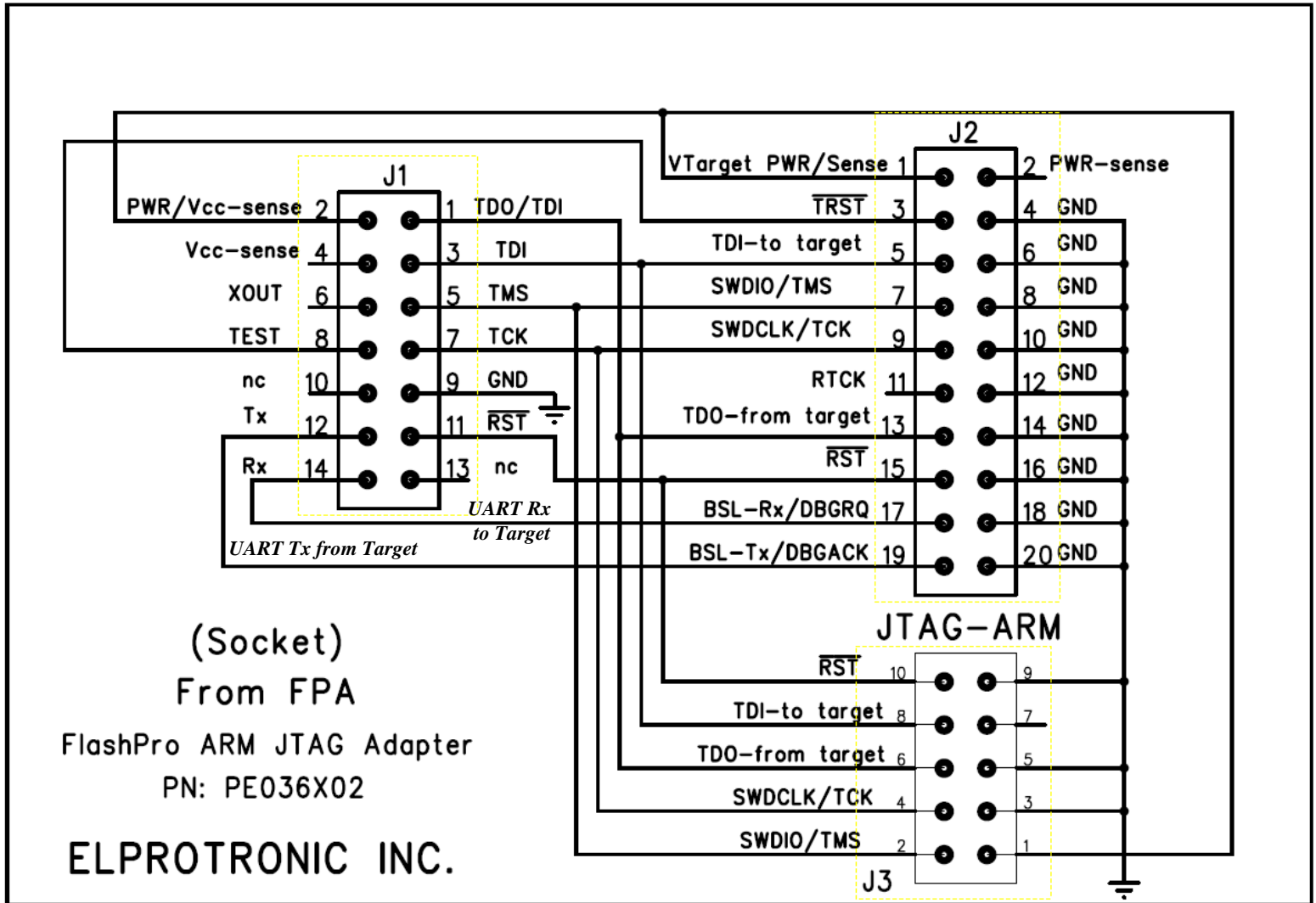
Adapter
PN: PE036X02



Connector PN:
3220-10-0100-00
(CNC Tech)

SBH11-PBPC-D10-ST-BK
(Sullins)

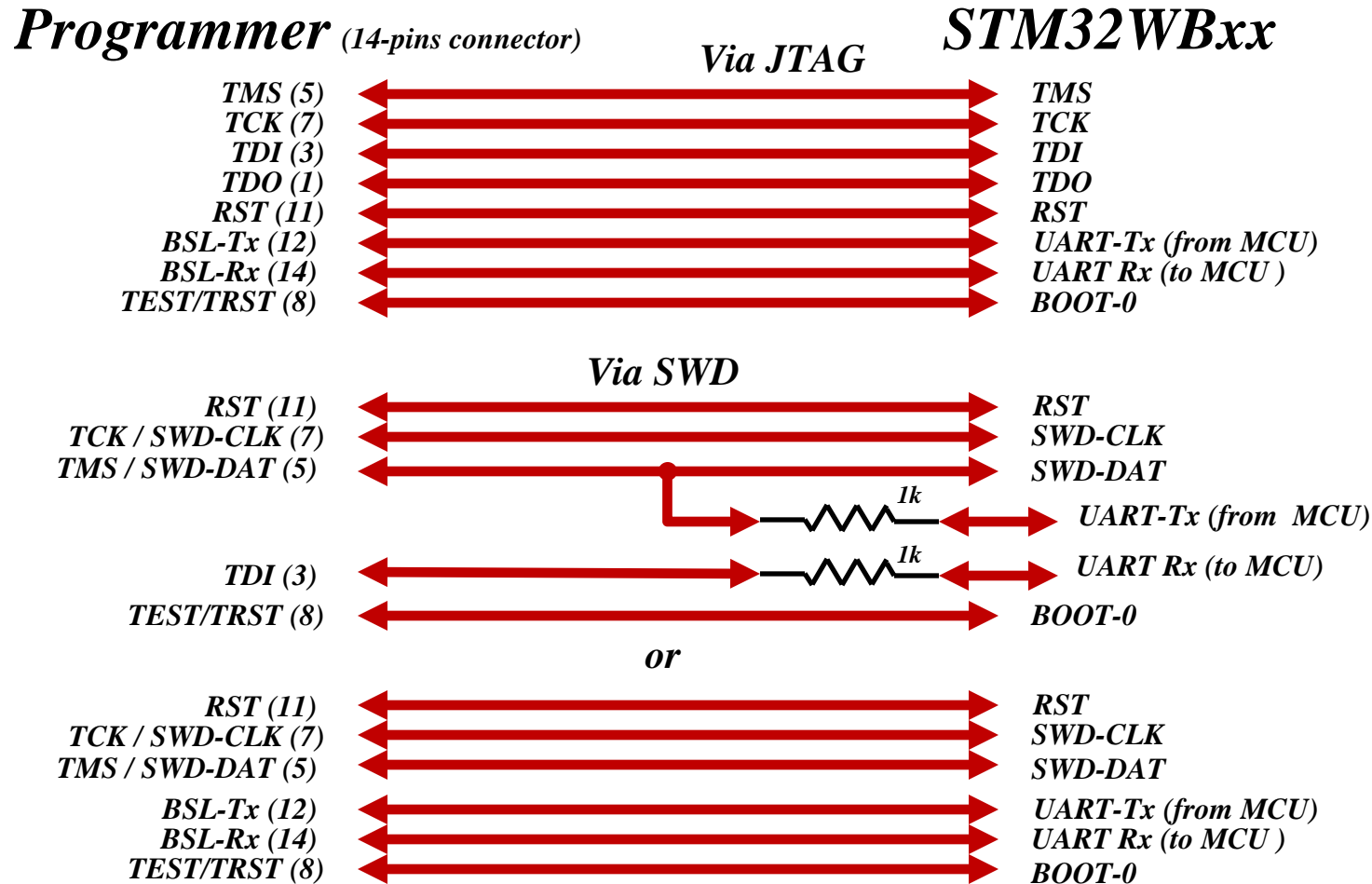
SFH11-PBPC-D07-RA-BK
(Sullins)



Connection in FlashPro-ARM

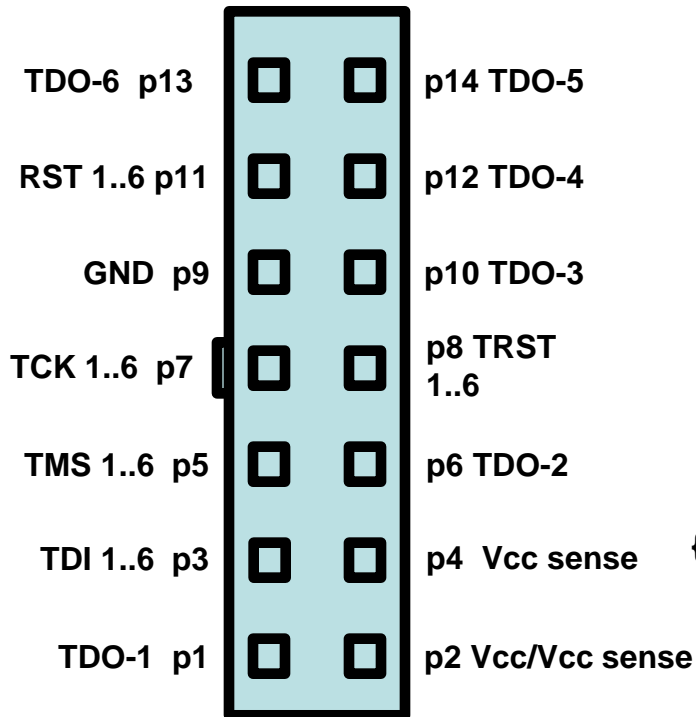
Connection with STM32WBxx – with JTAG/SWD and bootloader via UART.

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available in USB-FPA Adapters.



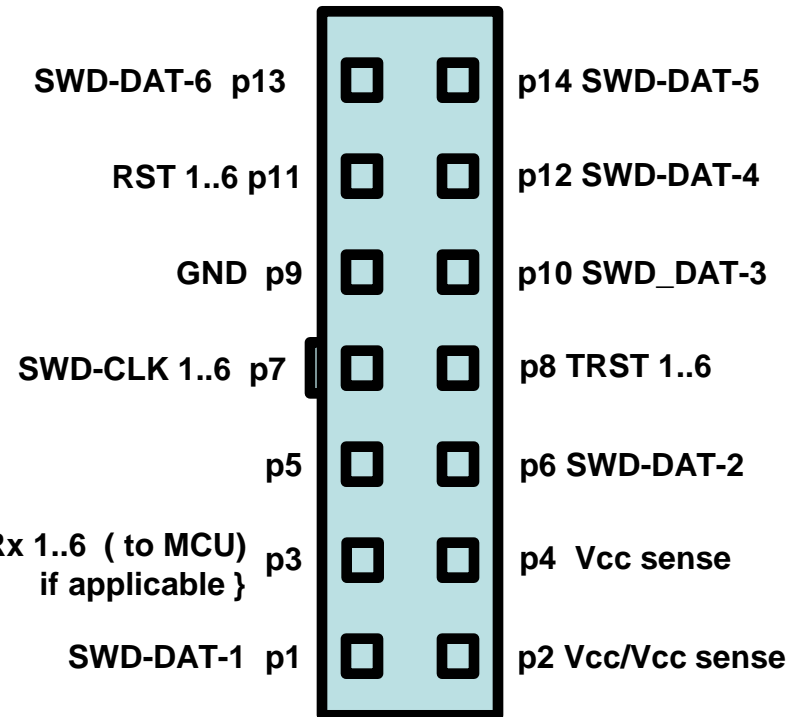
Pinout in GangPro-ARM

JTAG



Socket - front view

SWD



Socket - front view

Note:

cJTAG-CLK -> SWD-CLK

cJTAG-DAT-x -> SWD-DAT-x

SWD-DAT-x also can be used as UART Tx-x if applicable.

UART – available only in Xstream-Iso and XStreamPro-Iso Adapters.

Pinout in Flash-ARM

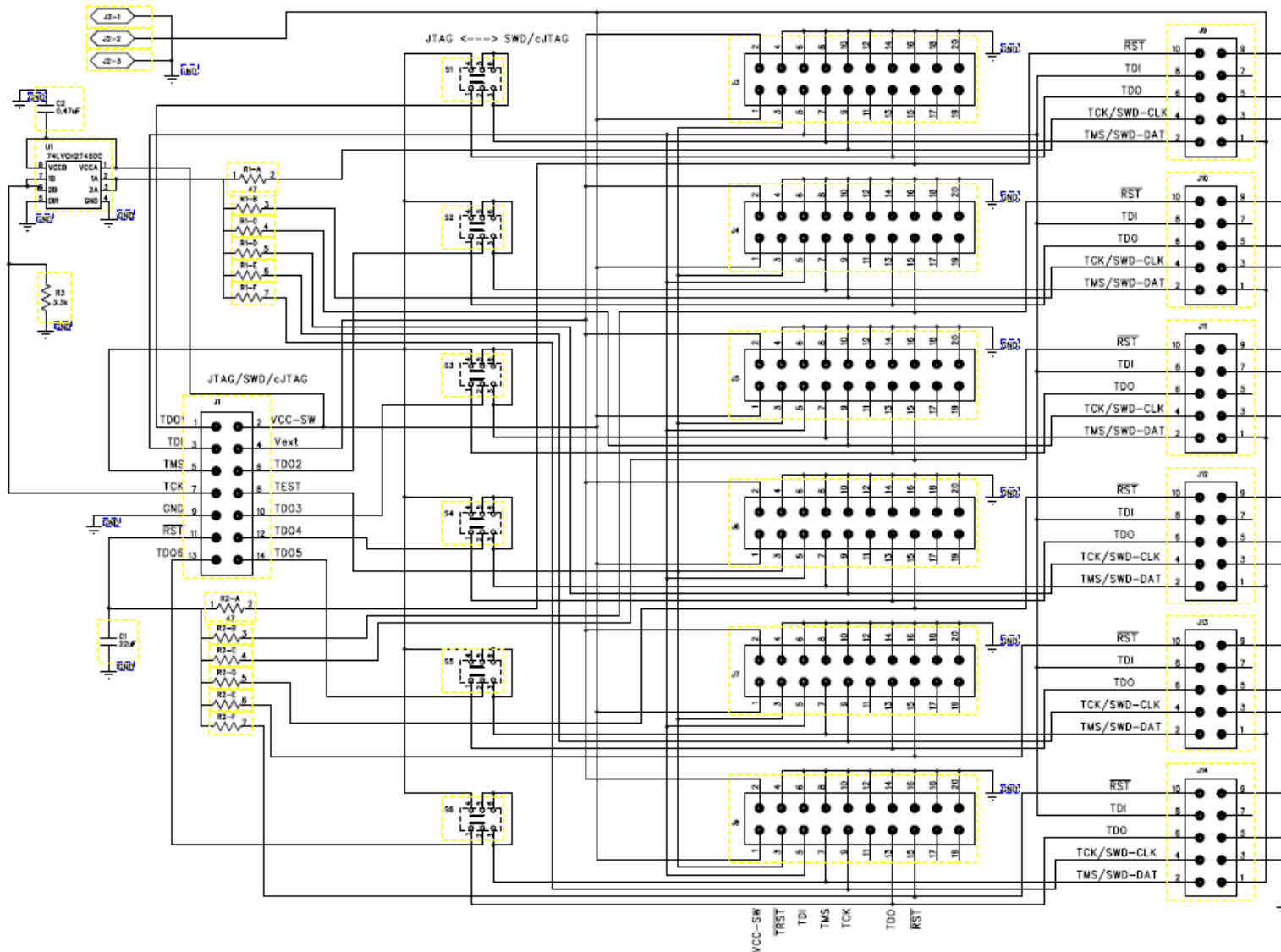
Connection for ARM with multi protocol – JTAG / SWD / UART / SPI

Note: Only with XStream-Iso, XStreamPro-Iso C-GANG, S-GANG Adapters.

Programmer 14-pins connector	JTAG	SWD	UART	SPI
1 – TDOI-1	TDO	-	-	-
2 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	TDI	--	--	CS (C-GANG)
4 – Vcc sense	Vcc sense	Vcc sense	Vcc sense	Vcc sense
5 – TMS	TMS	SWD-DAT	--	CS (S-GANG)
6 – TDOI-2	--	--	--	--
7 – TCK	TCK	SWD-CLK		CLK
8 – TEST	BOOT-0	BOOT-0	BOOT-0	BOOT-0
9 – GND	GND	GND	GND	GND
10 – TDOI-3	--	--	--	CS (XS, XS-Pro)
11 – RST	Reset	Reset	Reset	Reset
12 – TDOI-4	--	--	UART-Tx (from MCU)	MISO
13 – TDOI-6	--	--	--	--
14 – TDOI-5	--	--	UART Rx (to MCU)	MOSI

Pinout in GangPro-ARM

ARM Gang Splitter PN: PE014X07



Connector PN:

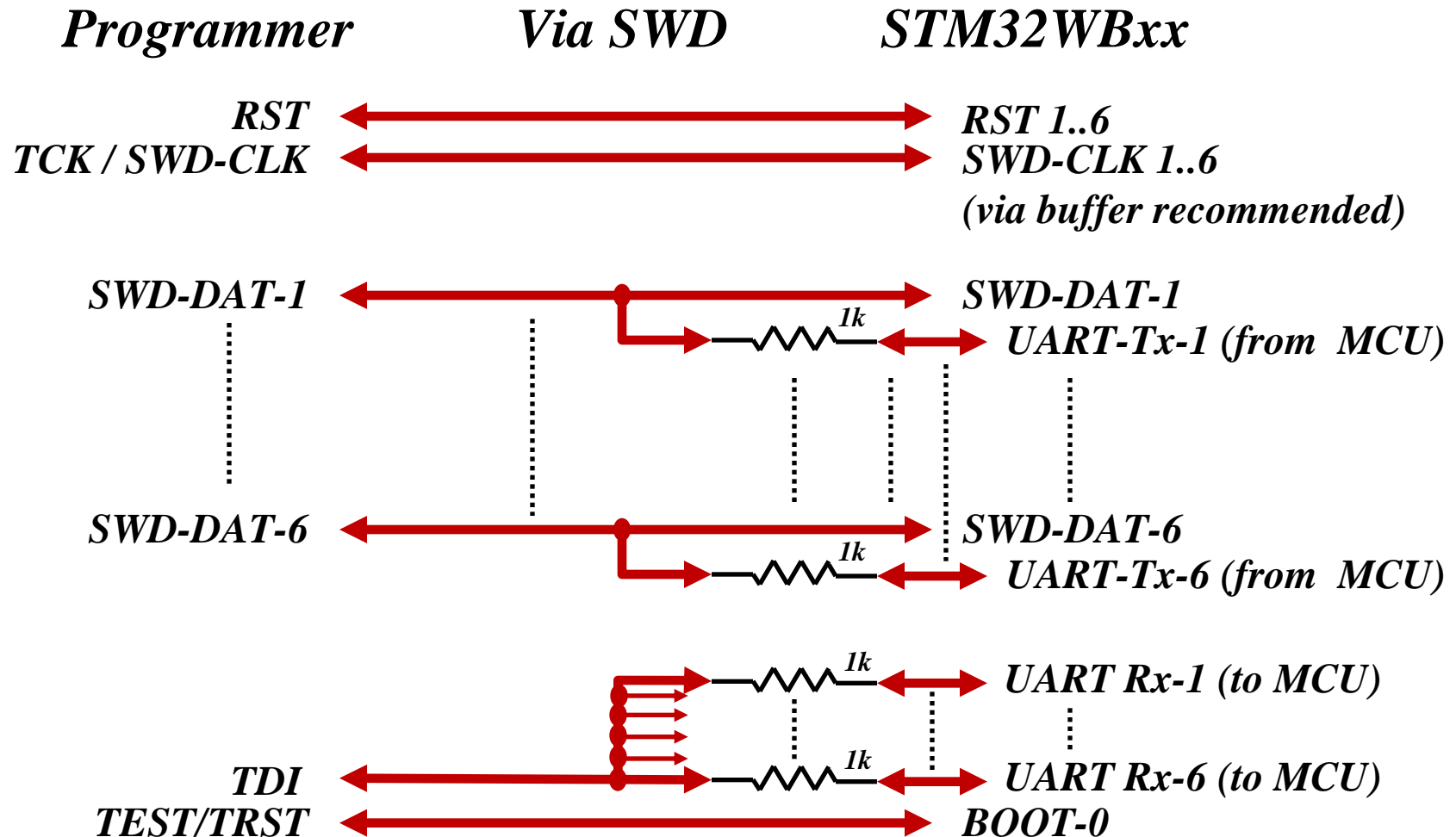
SBH11-PBPC-D10-ST-BK
(Sullins)

SFH11-PBPC-D07-RA-BK
(Sullins)

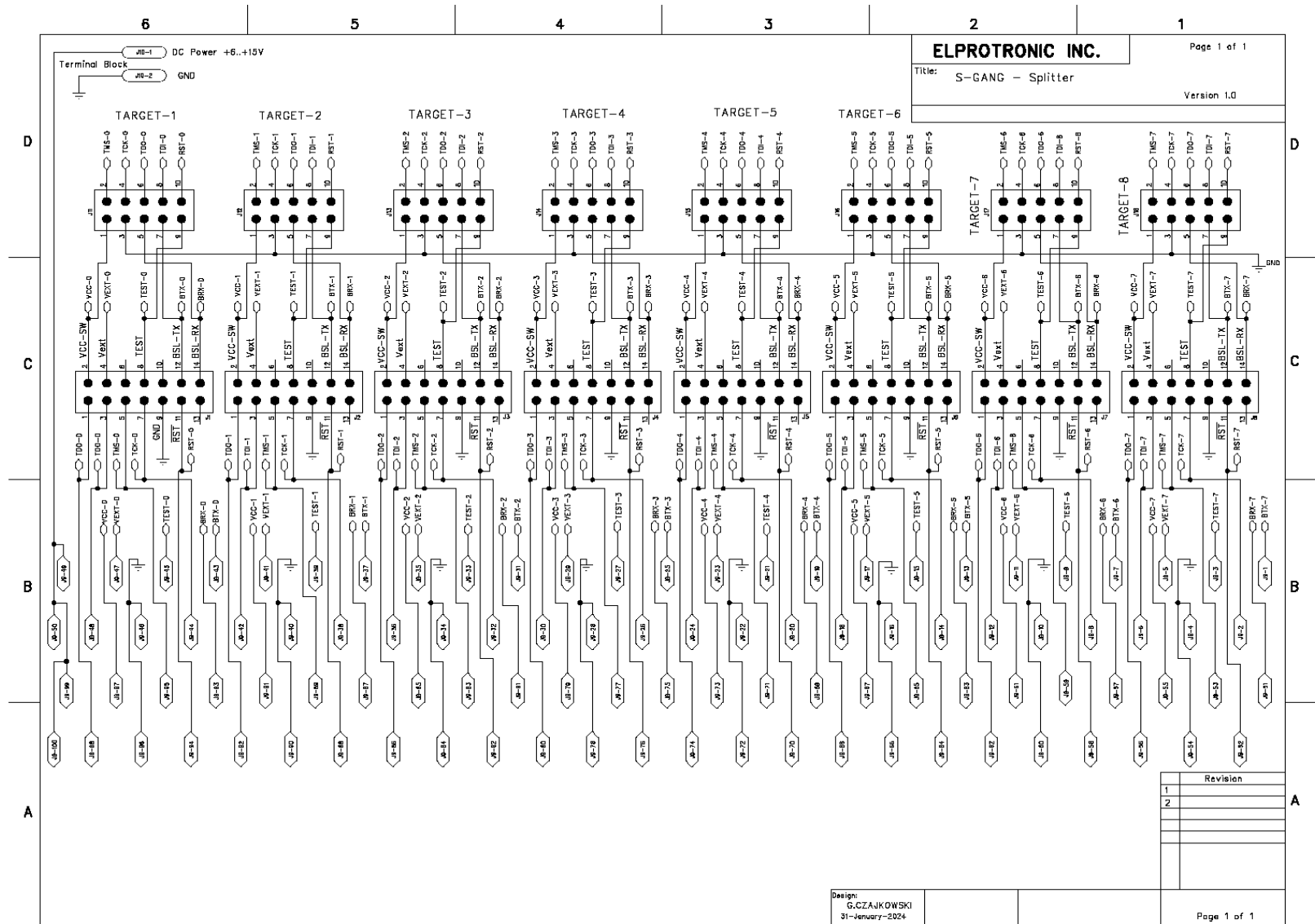
Connection in GangPro-ARM

Connection with STM32WBxx – with SWD and bootloader via UART.

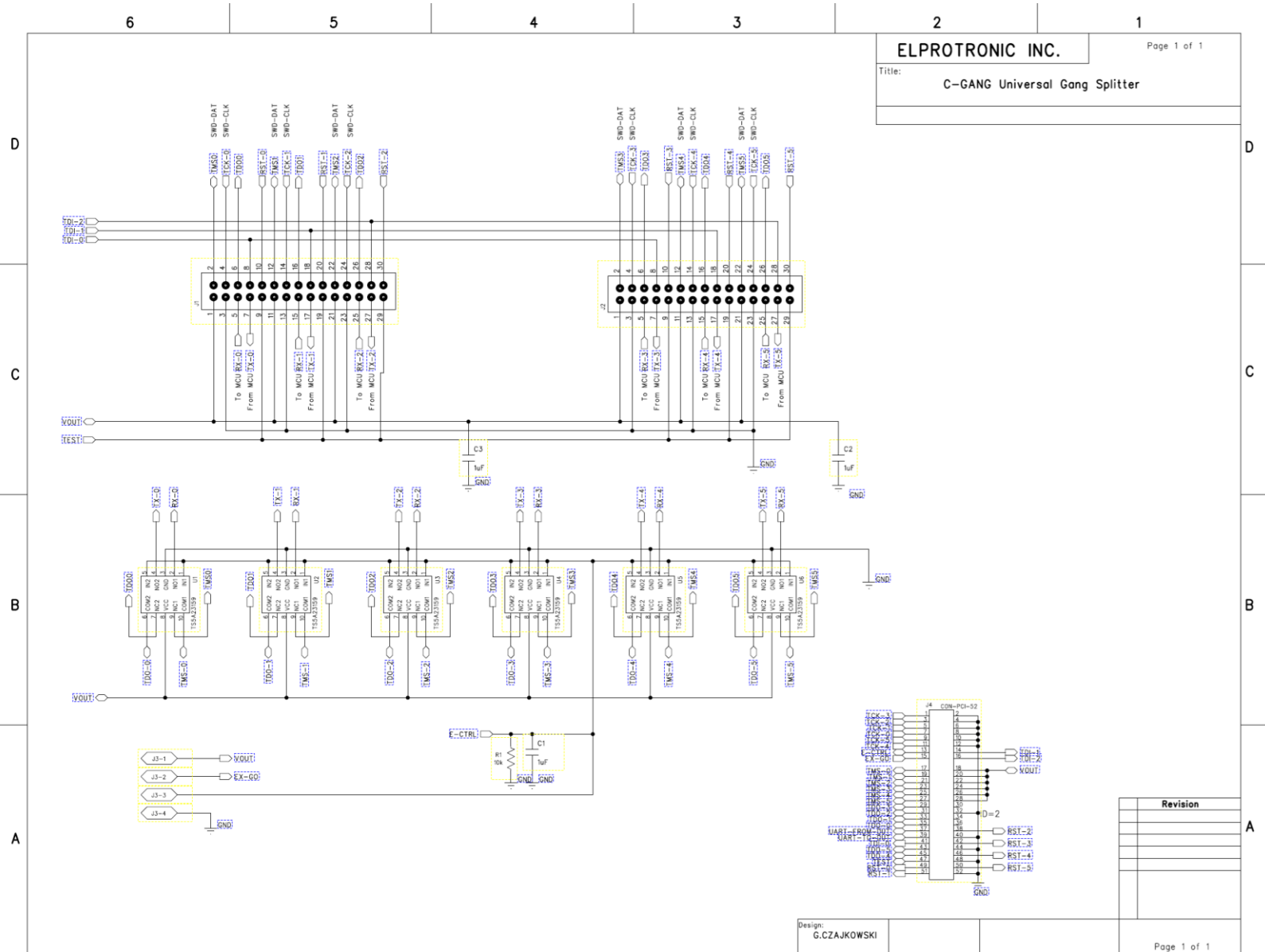
Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available in USB-FPA Adapters.



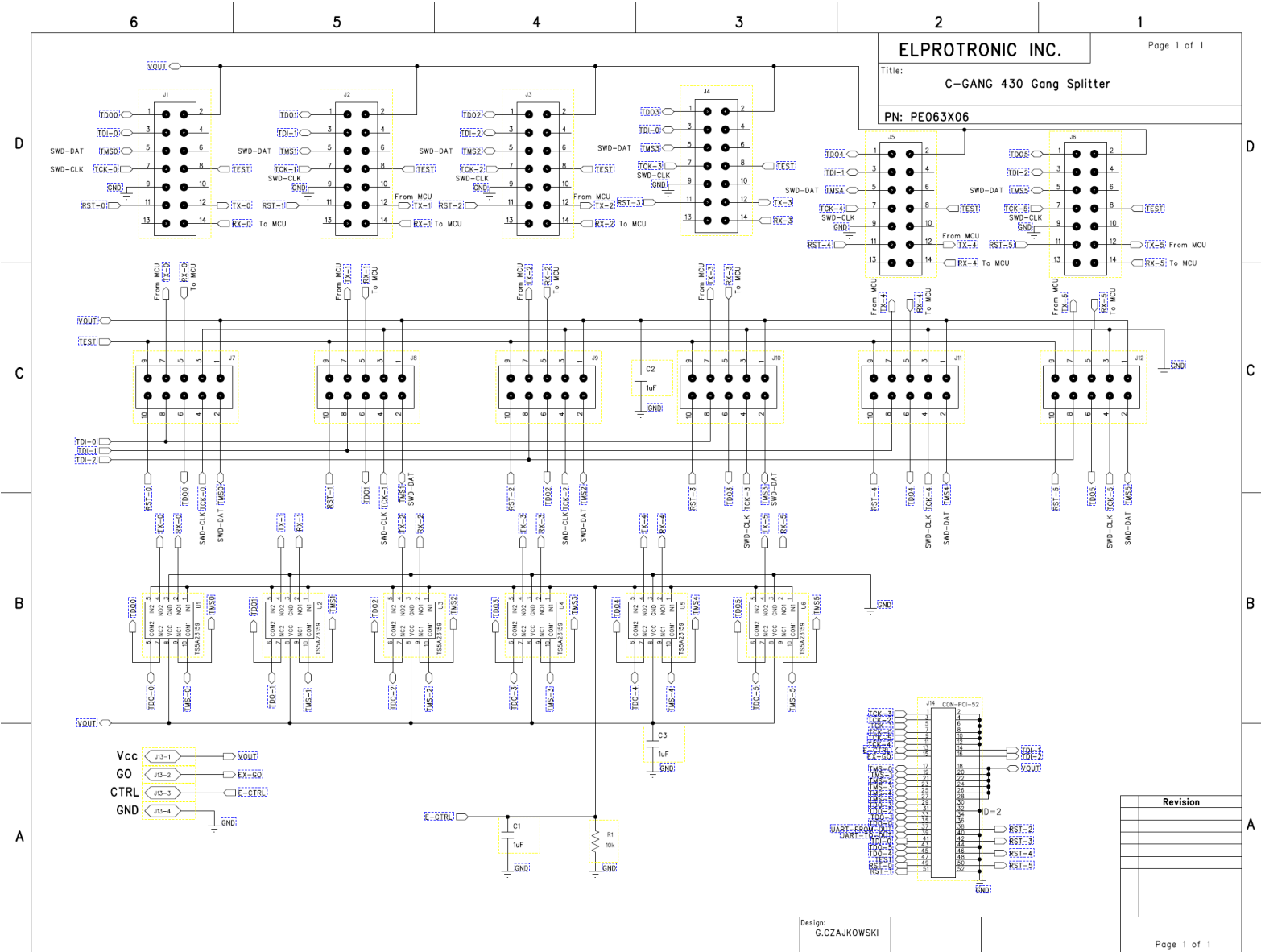
Pinout in S-GANG



Pinout in C-GANG Splitter PE063X05



Pinout in C-GANG Splitter PE063X06



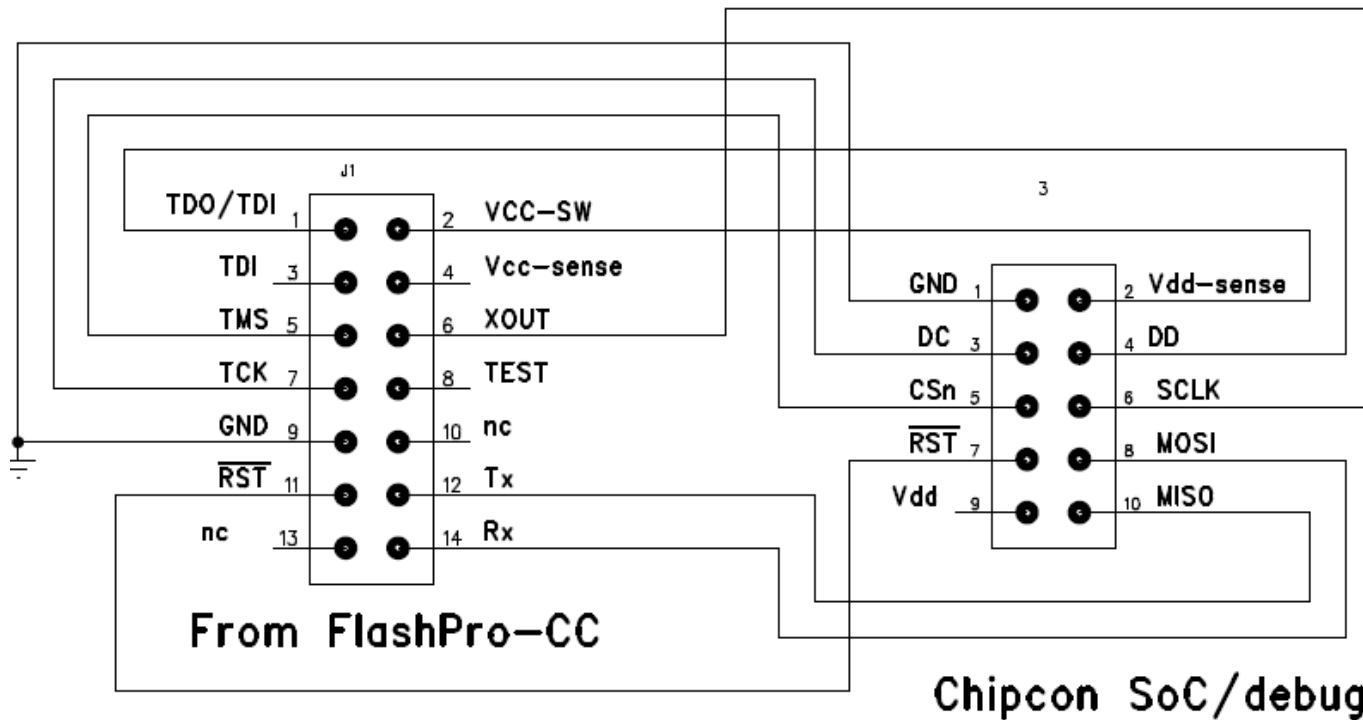
Pinout in FlashPro-CC

Connection with CC-xx MCU (8051 core) via Debug Port

Programmer 14-pins connector	Debug Port connection
1 – TDOI-1	Debug Data (DD)
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	--
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	--
7 – TCK	Debug Clock (DC)
8 – TEST	--
9 – GND	GND
10 – TDOI-3	--
11 – RST	RST
12 – TDOI-4	--
13 – TDOI-6	--
14 – TDOI-5	--

Pinout in FlashPro-CC

Connection with CC-xx MCU (8051 core) via Debug Port



PN:PE014X046



Connector PN:

SBH11-PBPC-D05-ST-BK
(Sullins)

SFH11-PBPC-D07-RA-BK
(Sullins)

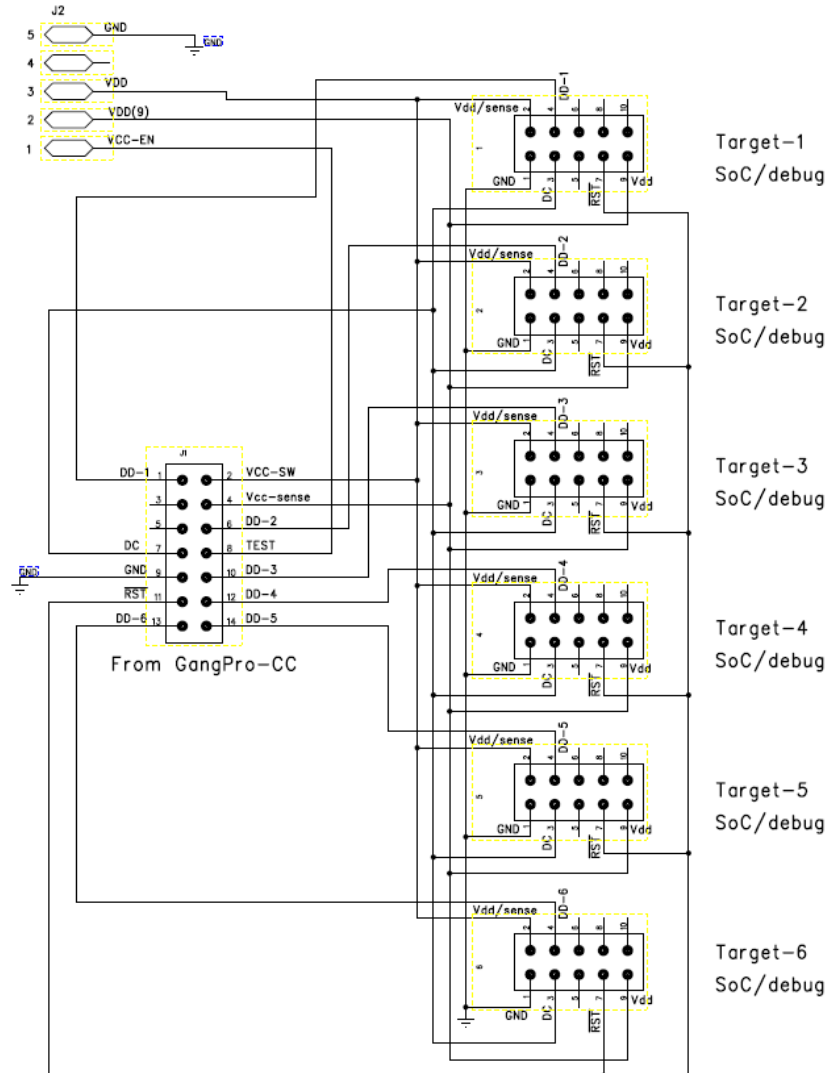
Pinout in GangPro-CC

Connection with CC-xx MCU (8051 core) via Debug Port

Programmer 14-pins connector	Debug Port connection
1 – TDOI-1	Debug Data (DD) - 1
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	--
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	Debug Data (DD) – 2
7 – TCK	Debug Clock (DC)
8 – TEST	--
9 – GND	GND
10 – TDOI-3	Debug Data (DD) – 3
11 – RST	RST
12 – TDOI-4	Debug Data (DD) – 4
13 – TDOI-6	Debug Data (DD) – 6
14 – TDOI-5	Debug Data (DD) - 5

Pinout in GangPro-CC

Connection with CC-xx MCU (8051 core) via Debug Port



CC Gang Splitter
PN: PE014X03



Connector PN:

SBH11-PBPC-D05-ST-BK
(Sullins)

SFH11-PBPC-D07-RA-BK
(Sullins)

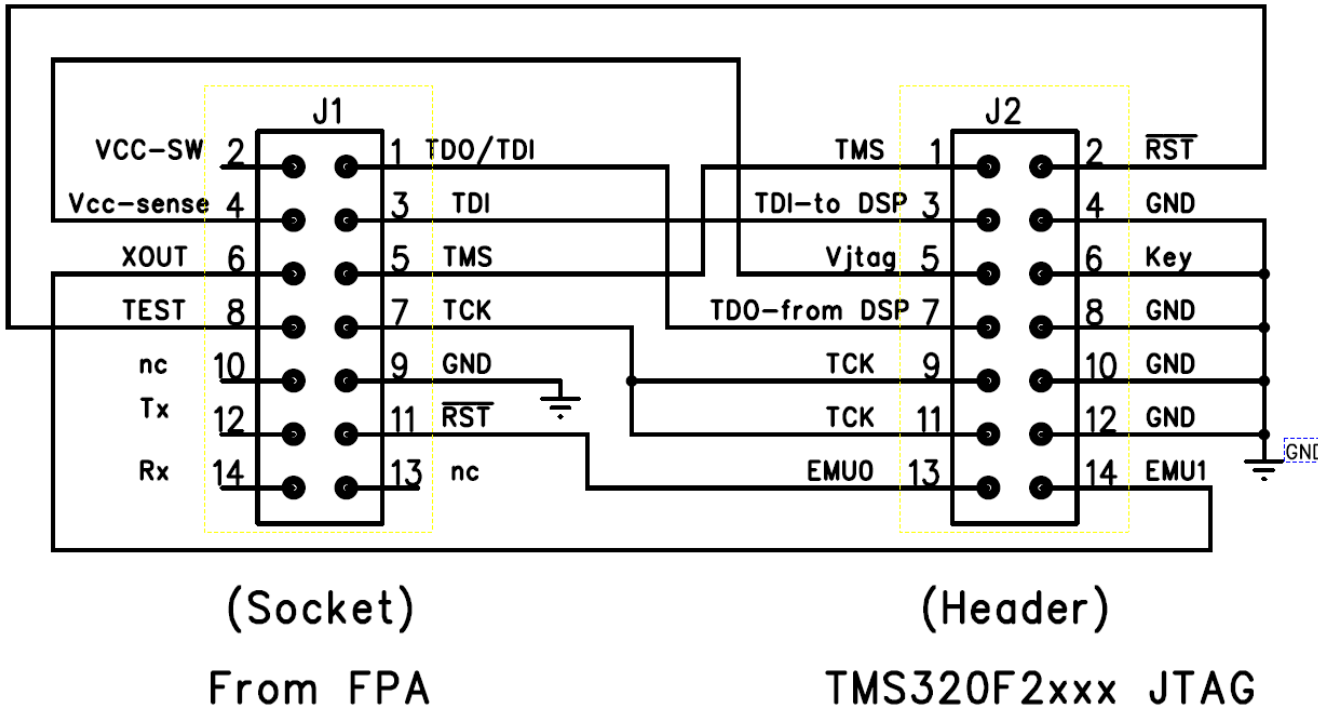
Pinout in FlashPro-2000

Connection with TMS320F28xx via JTAG and SCI

Programmer 14-pins connector	JTAG	SCI
1 – TDOI-1	TDO	--
2 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	TDI	--
4 – Vcc sense	Vcc sense	Vcc sense
5 – TMS	TMS	BOOT-SCI
6 – TDOI-2	EMU-1	RST
7 – TCK	TCK	--
8 – TEST	TRST	--
9 – GND	GND	GND
10 – TDOI-3	--	--
11 – RST	EMU-0	
12 – TDOI-4	--	SCI – from MCU
13 – TDOI-6	--	--
14 – TDOI-5	--	SCI – To MCU

Pinout in FlashPro-2000

*Connection with TMS320F28xx via JTAG
Adapter PN: PE034X02*



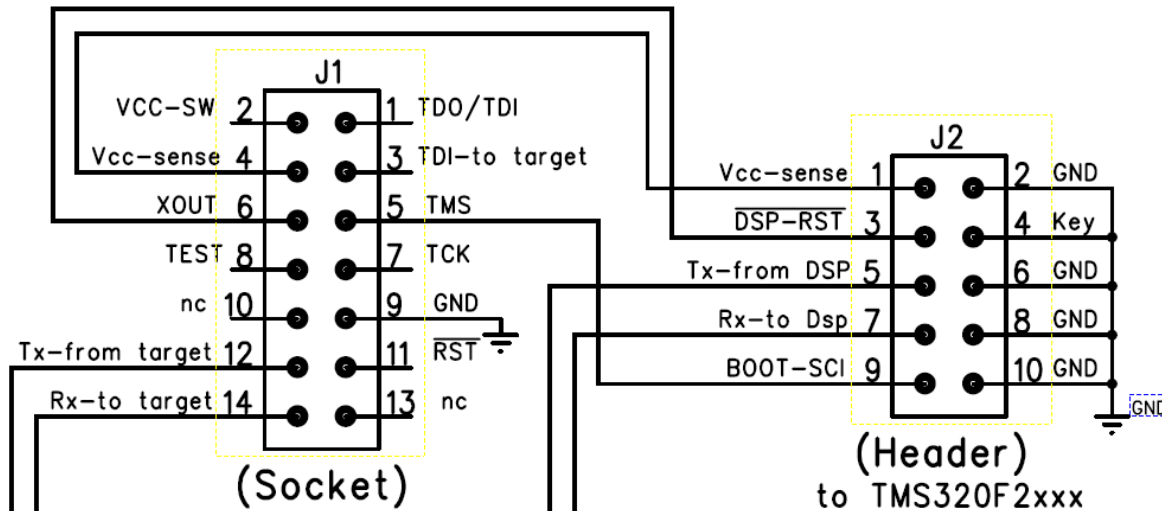
Connector PN:

SBH11-PBPC-D07-ST-BK
(Sullins)

SFH11-PBPC-D07-RA-BK
(Sullins)

Pinout in FlashPro-2000

Connection with TMS320F28xx via SCI Adapter PN: PE034X01



Connector PN:

SBH11-PBPC-D05-ST-BK
(Sullins)

SFH11-PBPC-D07-RA-BK
(Sullins)

From/To Adapter	C24xx	C2802x (Piccolo)	C280x	C2823x C2833x	C281x
Pin 3: $\overline{\text{DSP-RST}}$	XRSn	XRSn	XRSn	XRSn	XRSn
Pin 5: Tx-from DSP	SCITXD	SCIA-TX (GPIO-29)	SCIA-TX (GPIO-29)	SCIA-TX (GPIO-29)	SCIA-TX (GPIOF4)
Pin 7: Rx-to Dsp	SCIRXD	SCIA-RX (GPIO-28)	SCIA-RX (GPIO-28)	SCIA-RX (GPIO-28)	SCIA-RX (GPIOF5)
Pin 9: BOOT-SCI	BOOT-EN via resistor	GPIO-37 (TD0)	GPIO-34	GPIO-84	GPIOF4 via resistor
Pull-Down (via res 10-100k)	SPISIMO MP/MC	-	-	-	GPIOF12
Pull-Up (via res 10-100k)	-	GPIO-34	GPIO-18 GPIO-29	GPIO-85 GPIO-86 GPIO-87	GPIOF2 GPIOF3

Pinout in FlashPro-M

Connection with Serial Flash via SPI / QSPI and EEPROM via I2C

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	SPI / QSPI	I2C
1 – TDOI-1	SPI-MISO / QSPI-D1	I2C-DAT (add Pull-up)
2 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	SPI-MOSI / QSPI-D0	--
4 – Vcc sense	Vcc sense	Vcc sense
5 – TMS	--	--
6 – TDOI-2	--	--
7 – TCK	SPI-CLK / QSPI-CLK	I2C-CLK (add Pull-up)
8 – TEST	SPI-CS / QSPI-CS	--
9 – GND	GND	GND
10 – TDOI-3	--	--
11 – RST	--	--
12 – TDOI-4	--	--
13 – TDOI-6	--	--
14 – TDOI-5	--	--

Pinout in GangPro-M

Connection with Serial Flash via SPI / QSPI

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	SPI / QSPI
1 – TDOI-1	SPI-MISO – 1 / QSPI-D1 – 1
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	SPI-MOSI 1...6 / QSPI-D0 – 1...6
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	SPI-MISO – 2 / QSPI-D1 – 2
7 – TCK	SPI-CLK 1...6 / QSPI-CLK – 1...6
8 – TEST	SPI-CS / QSPI-CS – 1 ...6
9 – GND	GND
10 – TDOI-3	SPI-MISO – 3 / QSPI-D1 – 3
11 – RST	--
12 – TDOI-4	SPI-MISO – 4 / QSPI-D1 – 4
13 – TDOI-6	SPI-MISO – 6 / QSPI-D1 – 6
14 – TDOI-5	SPI-MISO – 5 / QSPI-D1 – 5

Pinout in FlashPro-M

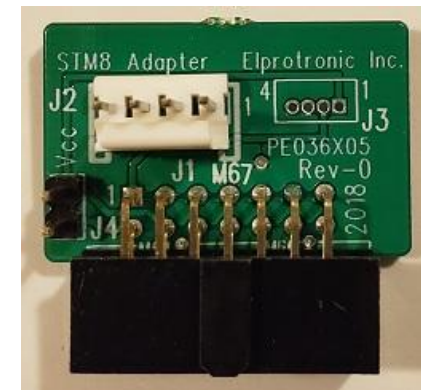
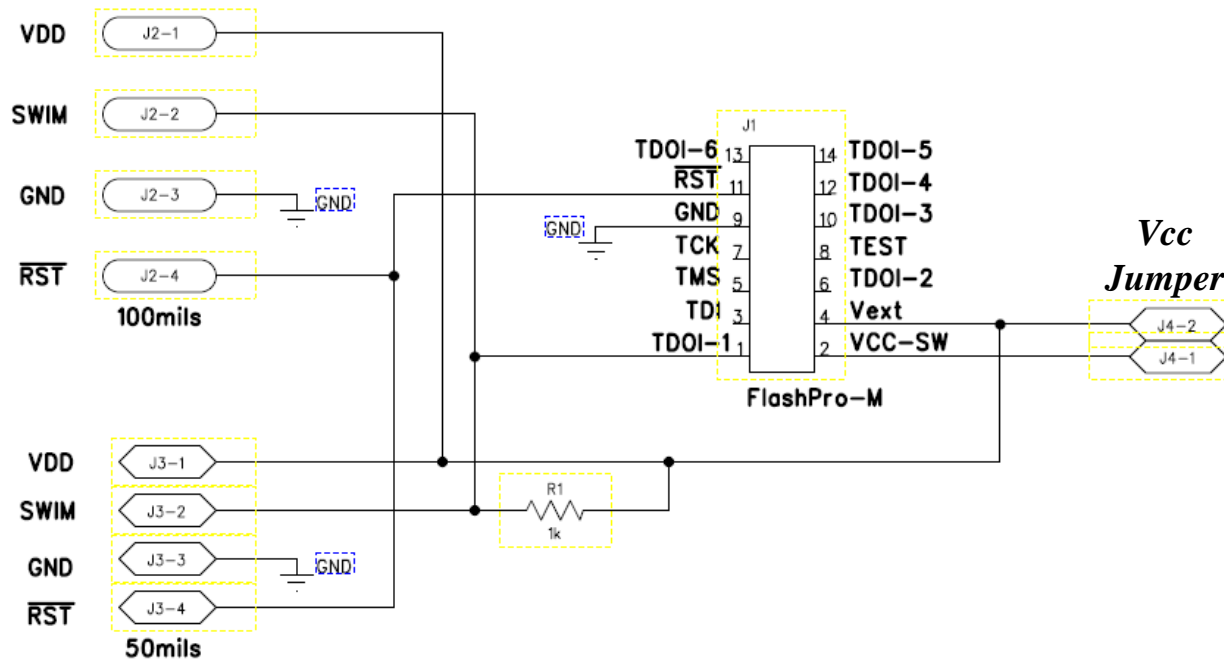
Connection with STM-8 MCUs (ST Microelectronics)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	SWIM
1 – TDOI-1	SWIM (add 750 ohms pull-up to Vcc)
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	--
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	--
7 – TCK	--
8 – TEST	--
9 – GND	GND
10 – TDOI-3	--
11 – RST	RST
12 – TDOI-4	--
13 – TDOI-6	--
14 – TDOI-5	--

Pinout in FlashPro-M

STM-8 Adapter PN: PE036X05



Pinout in GangPro-M

Connection with STM-8 (ST Microelectronics)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	SWIM
1 – TDOI-1	SWIM – 1 (add 750 ohms pull-up to Vcc)
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	--
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	SWIM – 2 (add 750 ohms pull-up to Vcc)
7 – TCK	--
8 – TEST	--
9 – GND	GND
10 – TDOI-3	SWIM – 3 (add 750 ohms pull-up to Vcc)
11 – RST	RST – 1...6
12 – TDOI-4	SWIM – 4 (add 750 ohms pull-up to Vcc)
13 – TDOI-6	SWIM – 6 (add 750 ohms pull-up to Vcc)
14 – TDOI-5	SWIM – 5 (add 750 ohms pull-up to Vcc)

Pinout in FlashPro-M

Connection with STM-8 MCUs (ST Microelectronics)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	SWIM
1 – TDOI-1	SWIM (add 750 ohms pull-up to Vcc)
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	--
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	--
7 – TCK	--
8 – TEST	--
9 – GND	GND
10 – TDOI-3	--
11 – RST	RST
12 – TDOI-4	--
13 – TDOI-6	--
14 – TDOI-5	--

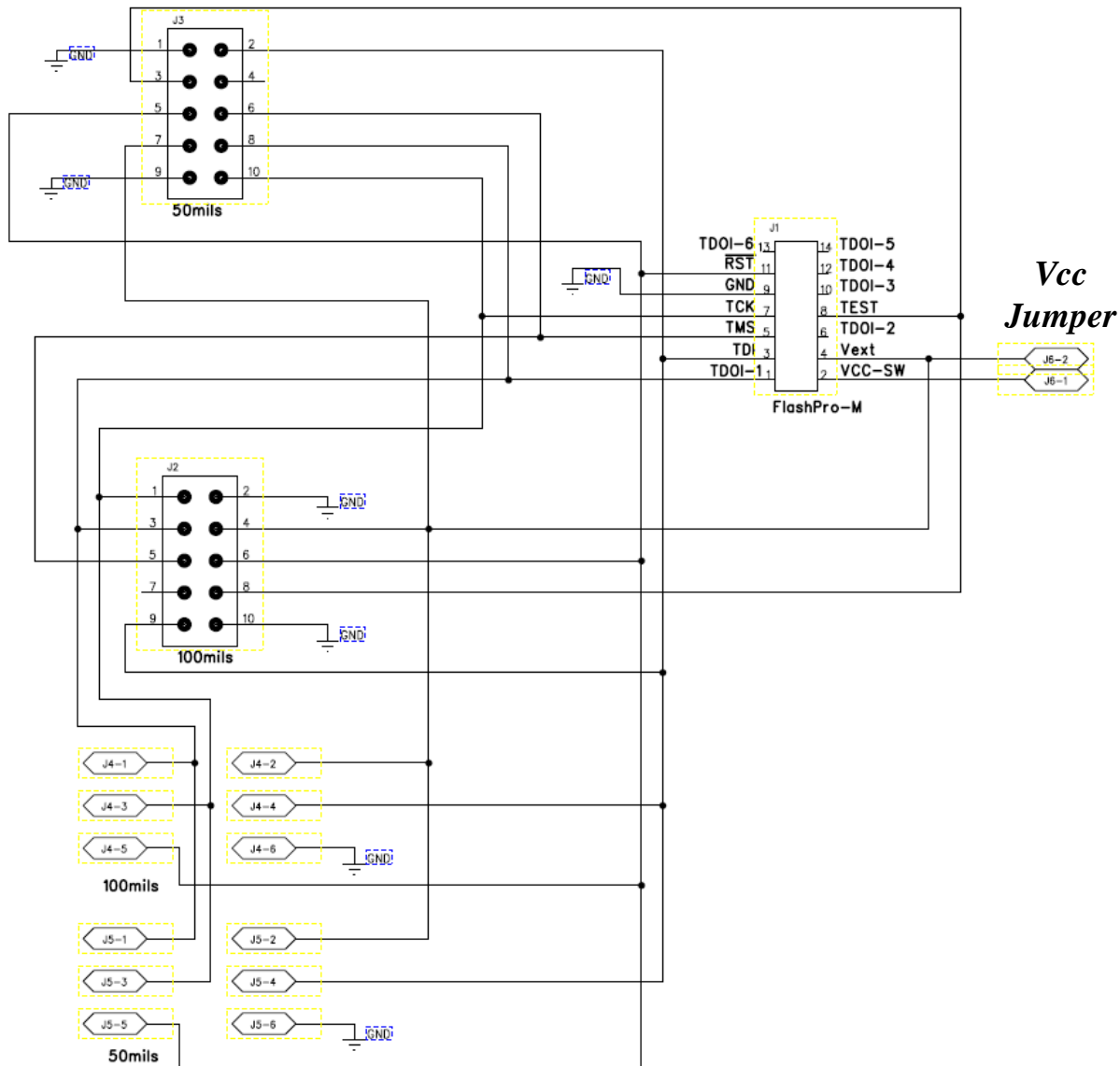
Pinout in FlashPro-M

Connection with AVR MCUs (Microchip/Atmel)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	SPI "A"	SPI "B"	TPI "A"	TPI "B"	JTAG	PDI "A"	PDI "B"	UPDI "A"	UPDI "B"	UPDI "C"
1 – TDOI-1	MISO	--	Data	--	TDO	Data	--	UPDI	--	--
2 – Vcc / Sense	Vcc	Vcc	Vcc	Vcc	Vcc	Vcc	Vcc	Vcc	Vcc	Vcc
3 – TDI	MOSI	--	--	--	TDI	--	--	--	--	--
4 – Vcc Sense	Sense	Sense	Sense	Sense	Sense	Sense	Sense	Sense	Sense	Sense
5 – TMS	--	--	--	--	TMS	--	--	--	--	--
6 – TDOI-2	--	CLK	--	CLK	--	--	--	--	--	--
7 – TCK	CLK	--	CLK	--	TCK	--	--	--	--	--
8 – TEST	--	--	--	--	--	--	--	--	--	--
9 – GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND
10 – TDOI-3	--	--	--	--	--	--	--	--	--	--
11 – RST	RST	RST	RST	RST	RST	CLK/RST	CLK/RST	--	UPDI	--
12 – TDOI-4	--	MISO	--	--	--	--	--	--	--	--
13 – TDOI-6	--	--	--	--	--	--	--	--	--	--
14 – TDOI-5	--	MOSI	--	Data	--	--	Data	--	--	UPDI

Pinout in FlashPro-M



AVR Adapter PN: PE036X04



Connector PN:

3220-10-0100-00
(CNC Tech)

SBH11-PBPC-D05-ST-BK
(Sullins)

SFH11-PBPC-D07-RA-BK
(Sullins)

Pinout in FlashPro-M

Connection with PIC MCUs (Microchip)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	ICSP
1 – TDOI-1	ICSP-DATA
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	--
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	--
7 – TCK	ICSP-CLK
8 – TEST	--
9 – GND	GND
10 – TDOI-3	--
11 – RST	RST
12 – TDOI-4	--
13 – TDOI-6	--
14 – TDOI-5	--

Pinout in GangPro-M

Connection with AVR MCUs (Microchip/Atmel) via SPI / JTAG / PDI / UPDI / TPI / ICSP

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	SPI	JTAG	PDI	UPDI	TPI	ICSP
1 – TDOI-1	SPI-MISO – 1	TDO – 1	PDI-Data – 1	UPDI-Data – 1	TPI-Data – 1	ICSP – 1
2 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	SPI-MOSI 1...6	TDI 1...6	--	--	--	--
4 – Vcc sense	Vcc sense	Vcc sense	Vcc sense	Vcc sense	Vcc sense	Vcc sense
5 – TMS	--	TMS 1...6	--	--	--	--
6 – TDOI-2	SPI-MISO – 2	TDO – 2	PDI-Data – 2	UPDI-Data – 2	TPI-Data – 2	ICSP – 2
7 – TCK	SPI-CLK 1...6	SPI-CLK 1...6	--	--	TPI-Clk 1..6	ICSP-Clk 1..6
8 – TEST	--	--	--	--	--	--
9 – GND	GND	GND	GND	GND	GND	GND
10 – TDOI-3	SPI-MISO – 3	TDO – 3	PDI-Data – 3	UPDI-Data – 3	TPI-Data – 3	ICSP – 3
11 – RST	RST 1...6	RST 1...6	RST / PDI-Clk 1..6	--	RST 1...6	RST 1...6
12 – TDOI-4	SPI-MISO – 4	TDO – 4	PDI-Data – 4	UPDI-Data – 4	TPI-Data – 4	ICSP – 4
13 – TDOI-6	SPI-MISO – 6	TDO – 6	PDI-Data – 6	UPDI-Data – 6	TPI-Data – 6	ICSP – 6
14 – TDOI-5	SPI-MISO – 5	TDO – 5	PDI-Data – 5	UPDI-Data – 5	TPI-Data – 5	ICSP – 5

Pinout in FlashPro-M

Connection with RL-78 MCUs (Renesas Electronics)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	SWIM
1 – TDOI-1	UART (Tool0)
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	--
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	--
7 – TCK	--
8 – TEST	--
9 – GND	GND
10 – TDOI-3	--
11 – RST	RST
12 – TDOI-4	--
13 – TDOI-6	--
14 – TDOI-5	--

Pinout in GangPro-M

Connection with RL-78 (Renesas Electronics)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	UART
1 – TDOI-1	UART-1 (Tool0-1)
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	-
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	UART-2 (Tool0-2)
7 – TCK	--
8 – TEST	--
9 – GND	GND
10 – TDOI-3	UART-3 (Tool0-3)
11 – RST	RST – 1...6
12 – TDOI-4	UART-4 (Tool0-4)
13 – TDOI-6	UART-6 (Tool0-6)
14 – TDOI-5	UART-5 (Tool0-5)

Pinout in FlashPro-iMOTION

Connection with MCE and ARM MCUs (Infineon)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	UART
1 – TDOI-1	Input from UART-Tx (add 22k pullup) (MCE Core)
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	Output to UART-Rx (add 22k pullup) (MCE Core)
4 – Vcc sense	Vcc sense
5 – TMS	SWDIO (ARM Core)
6 – TDOI-2	--
7 – TCK	SWCLK (ARM Core)
8 – TEST	--
9 – GND	GND
10 – TDOI-3	--
11 – RST	RST
12 – TDOI-4	--
13 – TDOI-6	--
14 – TDOI-5	--

Pinout in GangPro-iMOTION

Connection with MCE and ARM MCUs (Infineon)

Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available with USB-FPA Adapters.

Programmer 14-pins connector	UART
1 – TDOI-1	Input from UART-Tx1 (add 22k pullup) or SWDAT-1
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	Output to UART-Rx (add 22k pullup) (to all MCEs)
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	Input from UART-Tx2 (add 22k pullup) or SWDAT-2
7 – TCK	SWCLK (to all MCUs)
8 – TEST	Switch for UART-TxX and SWDAT-X (0 – SWD, 1 - UART)
9 – GND	GND
10 – TDOI-3	Input from UART-Tx3 (add 22k pullup) or SWDAT-3
11 – RST	--
12 – TDOI-4	Input from UART-Tx4 (add 22k pullup) or SWDAT-4
13 – TDOI-6	Input from UART-Tx6 (add 22k pullup) or SWDAT-6
14 – TDOI-5	Input from UART-Tx5 (add 22k pullup) or SWDAT-5