

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

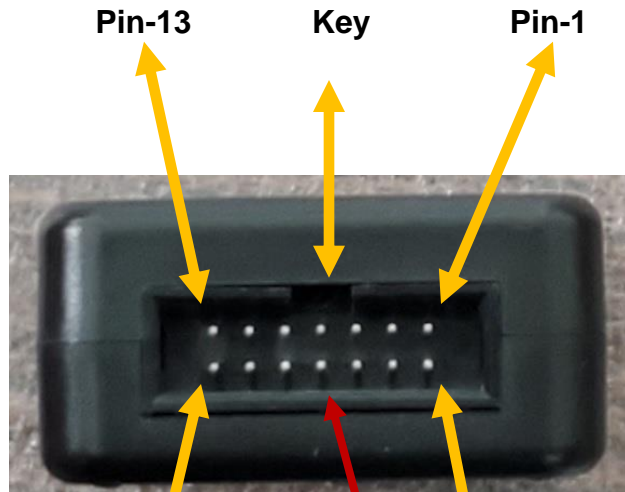
Elprotronic

[www.elprotronic.com](http://www.elprotronic.com)

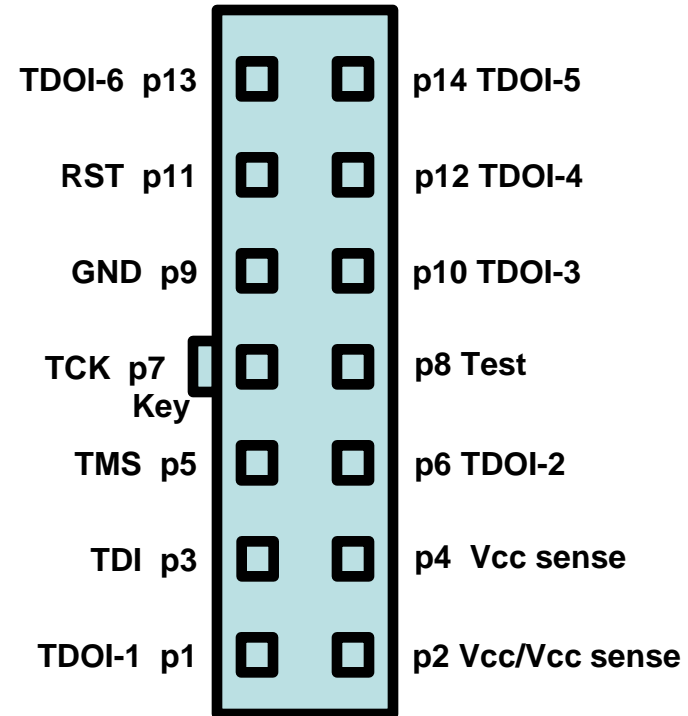
# *Connection between targets and Flash and Gang Programmers*

*PM037A02 rev. 1.5  
September, 15.2020*

# 14-pin Connector from Programmer

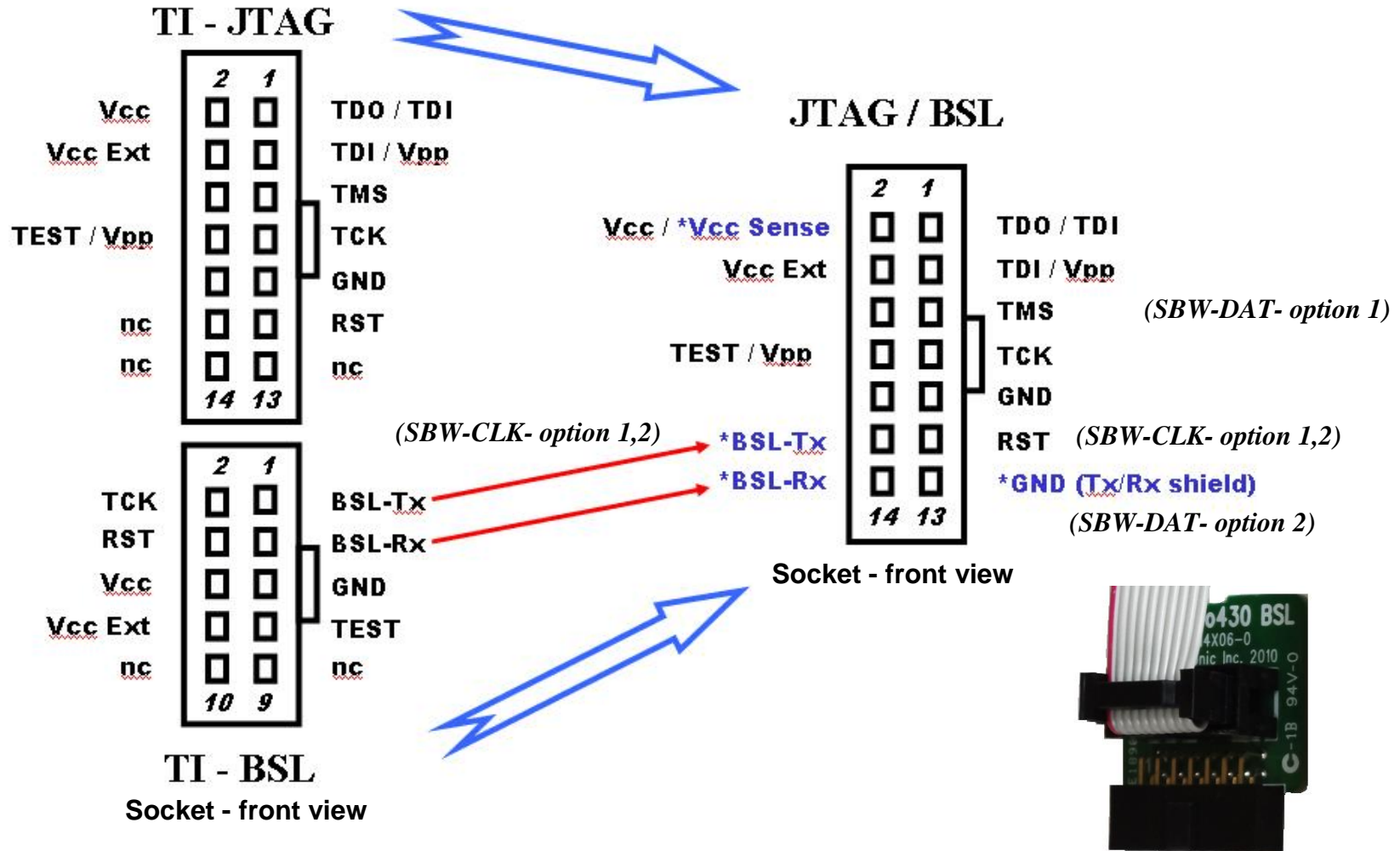


Connector PN:  
SBH11-PBPC-D07-RA-BK  
(Sullins)



Socket - front view

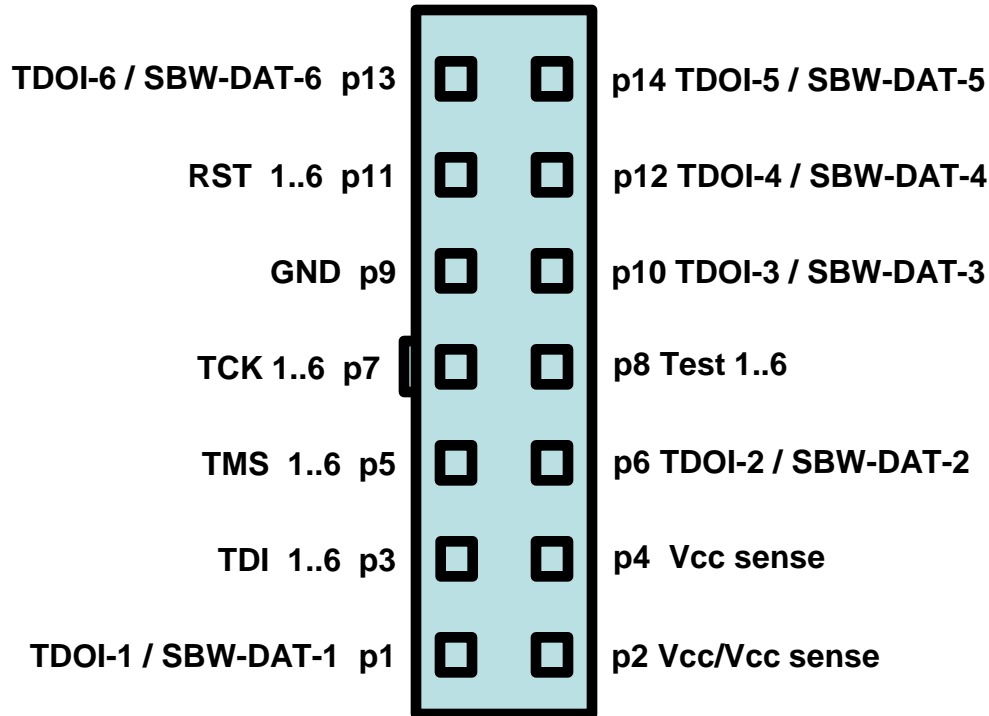
# Pinout in FlashPro430



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

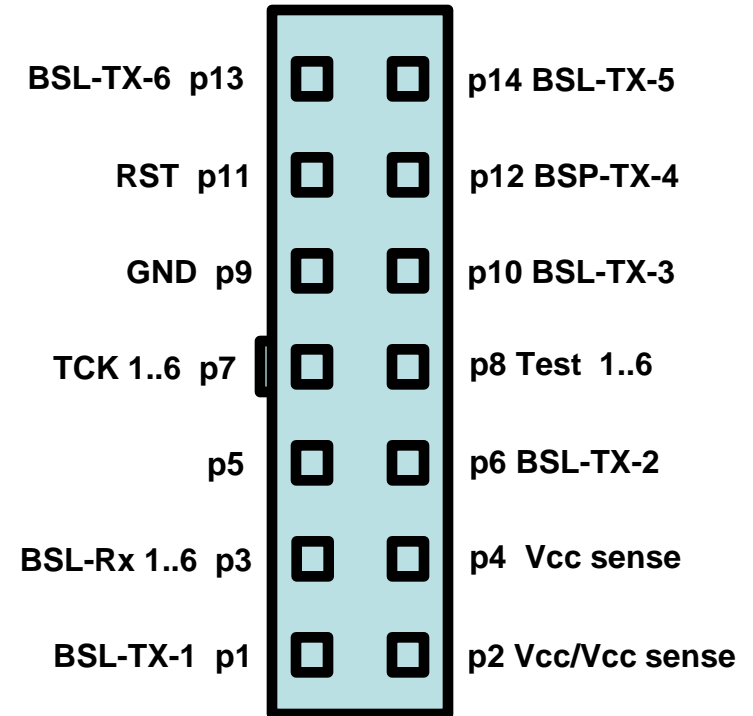
# Pinout in GangPro430

## JTAG / SBW



Socket - front view

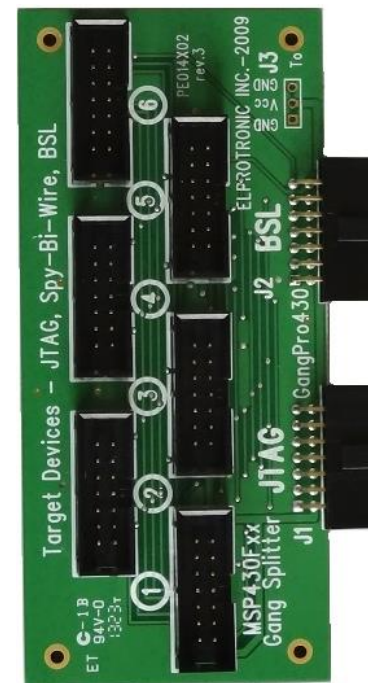
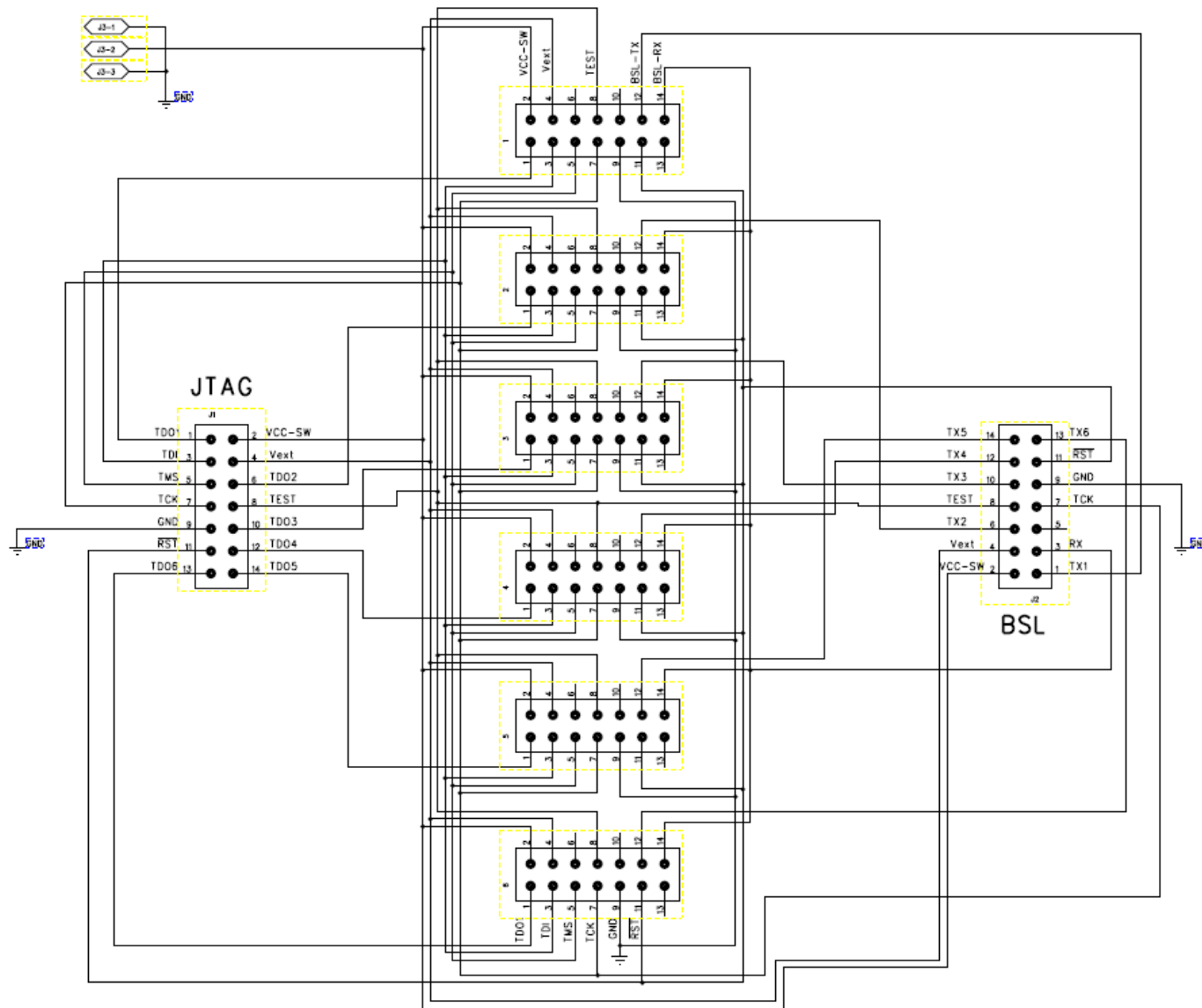
## BSL



Socket - front view

# Pinout in GangPro430

*GangPro430 Splitter PN:PE014X02*



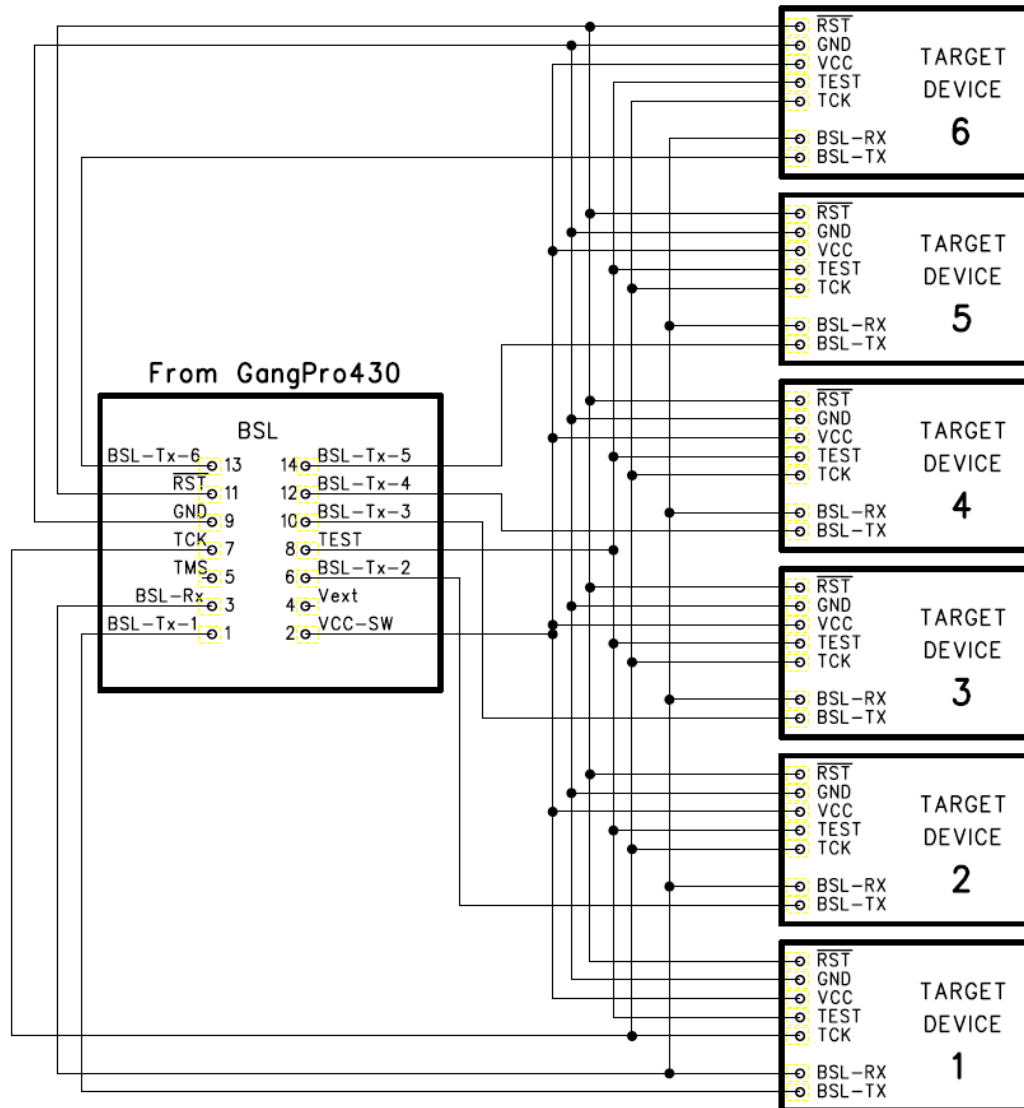
Connector PN:

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

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

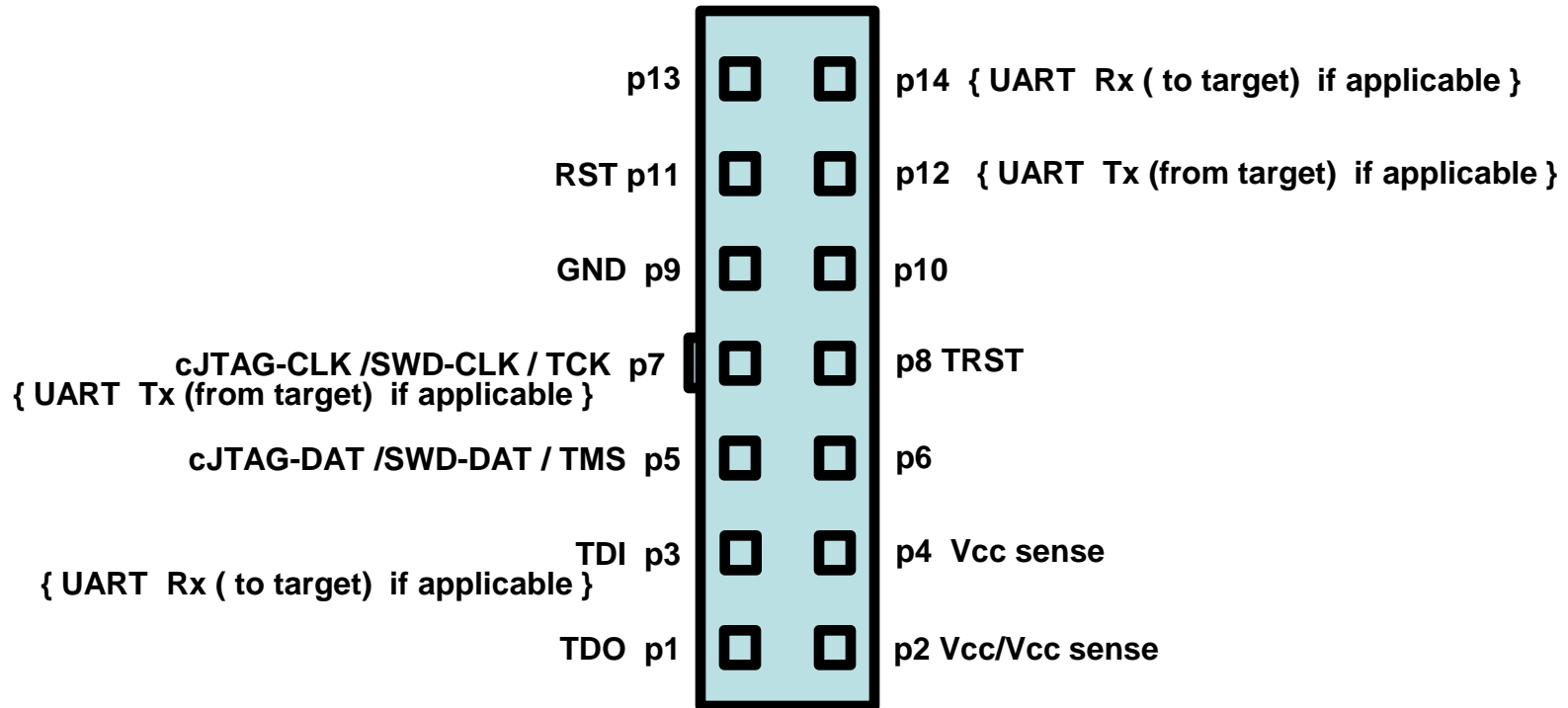
# Pinout in GangPro430

## BSL with GangPro430 connection



# Pinout in FlashPro-ARM

## JTAG / SWD

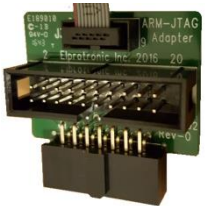


Socket - front view

# Pinout in FlashPro-ARM

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

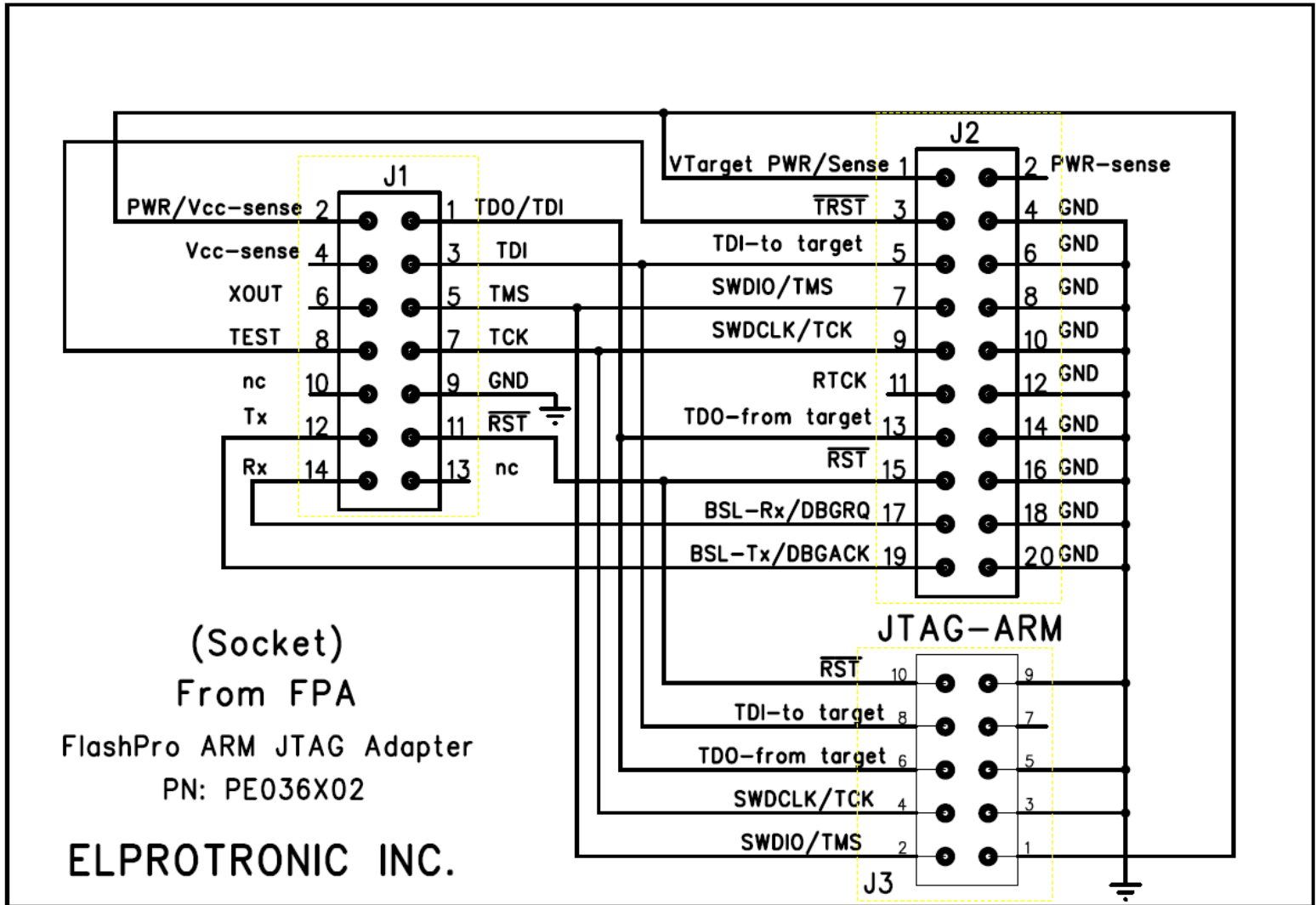
Adapter  
PN: PE036X02



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

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

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

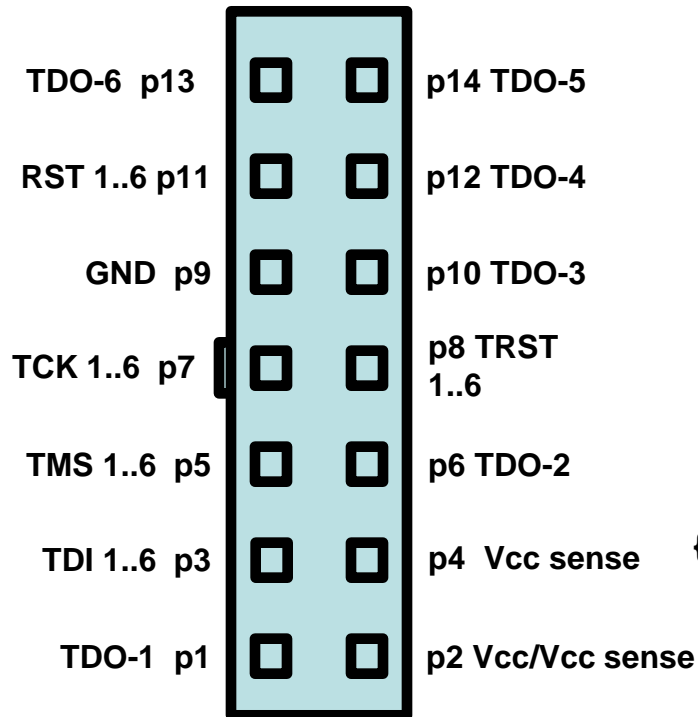






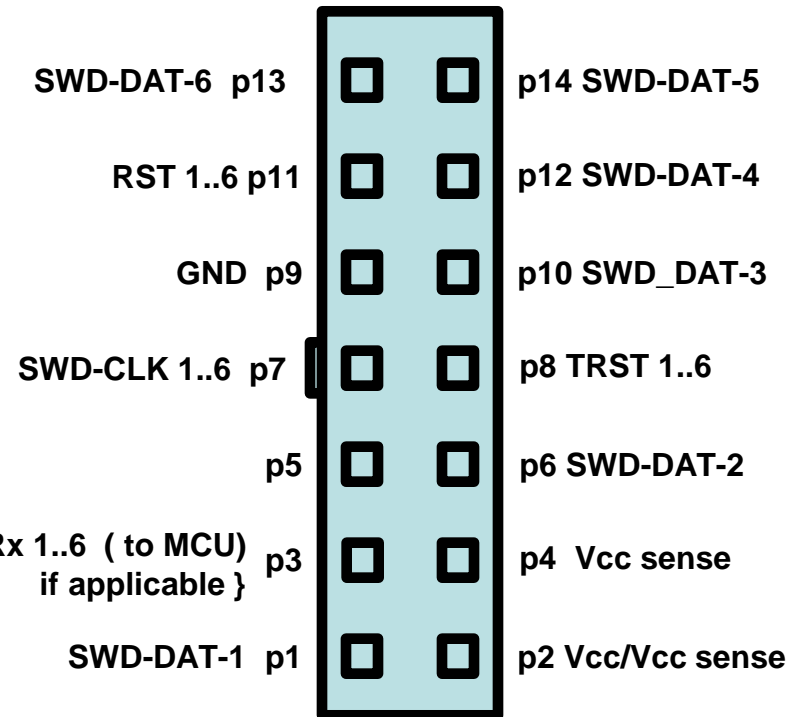
# Pinout in GangPro-ARM

## JTAG



Socket - front view

## SWD



Socket - front view

### Note:

cJTAG-CLK -> SWD-CLK

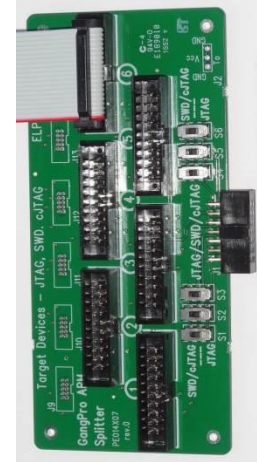
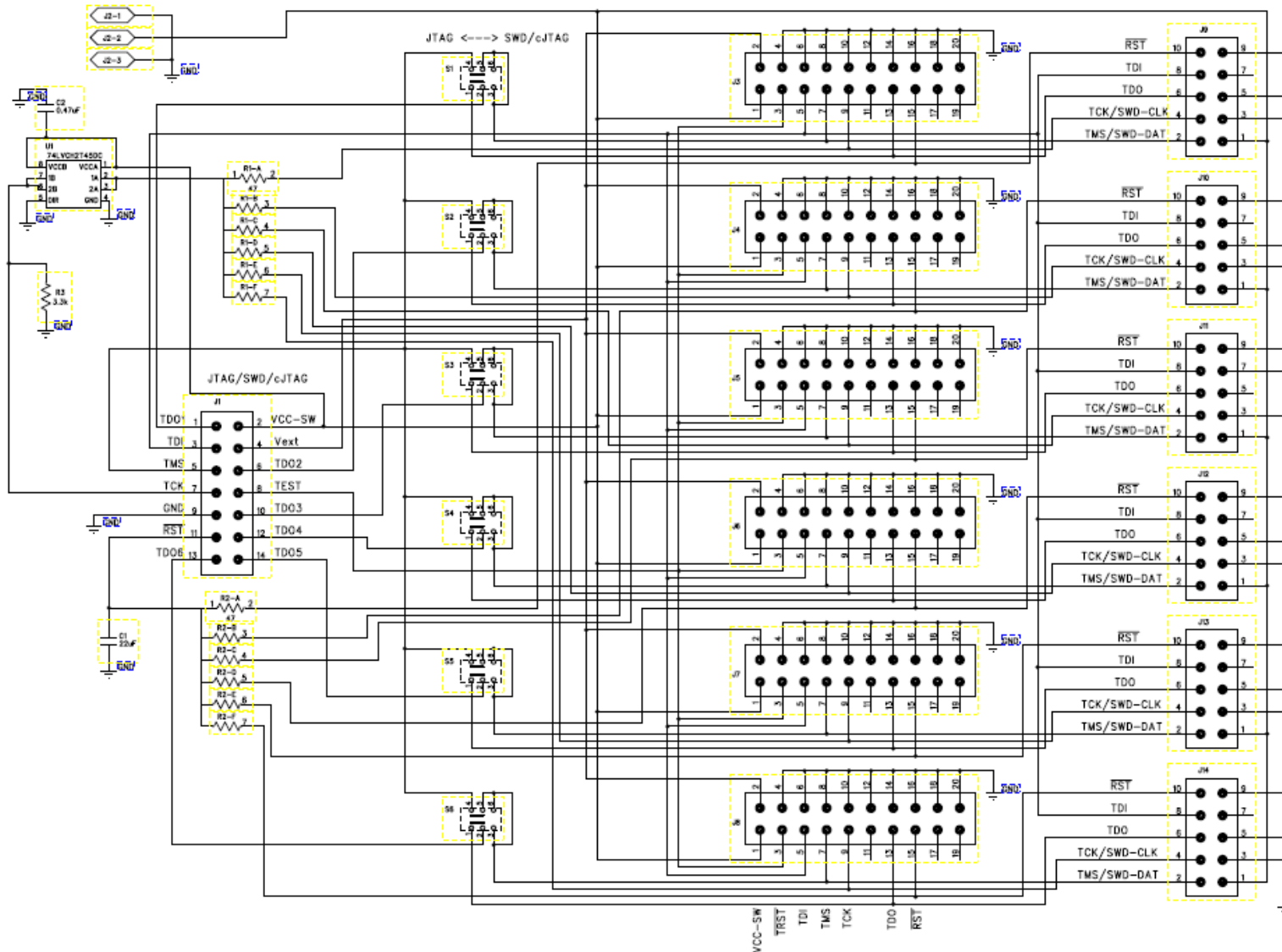
cJTAG-DAT-x -> SWD-DAT-x

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 GangPro-ARM

## ARM Gang Splitter PN: PE014X07



Connector PN:

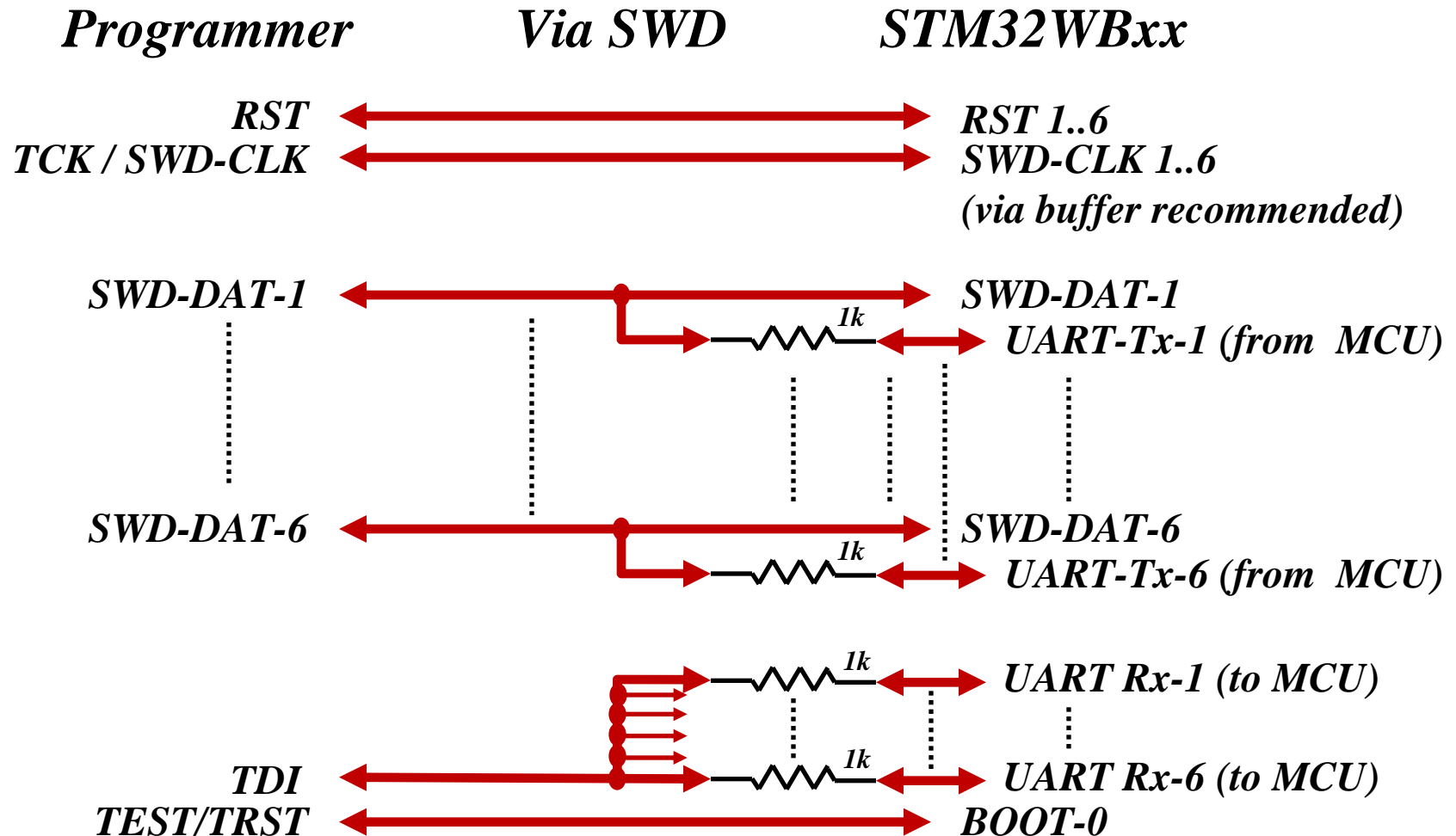
*SBH11-PBPC-D10-ST-BK*  
(Sullins)

*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.



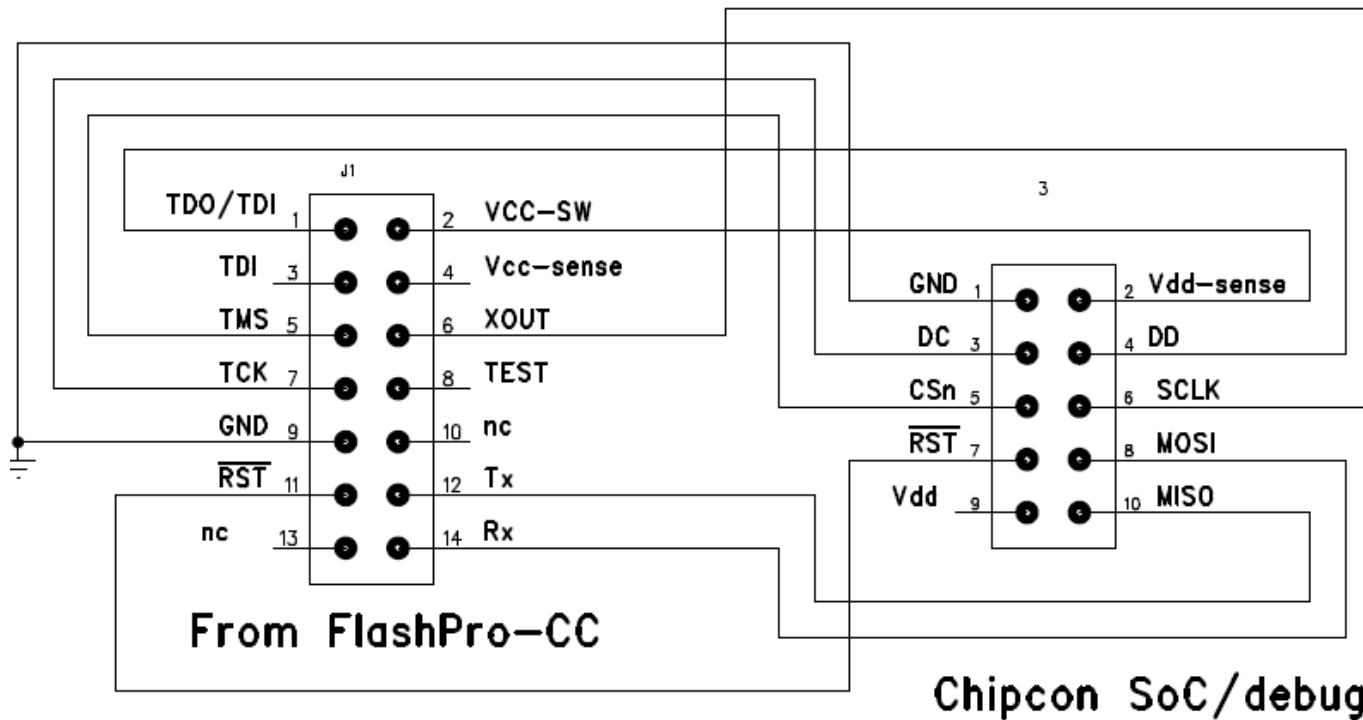
# Pinout in FlashPro-CC

## 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 – TDO-4	--
13 – TDO-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)

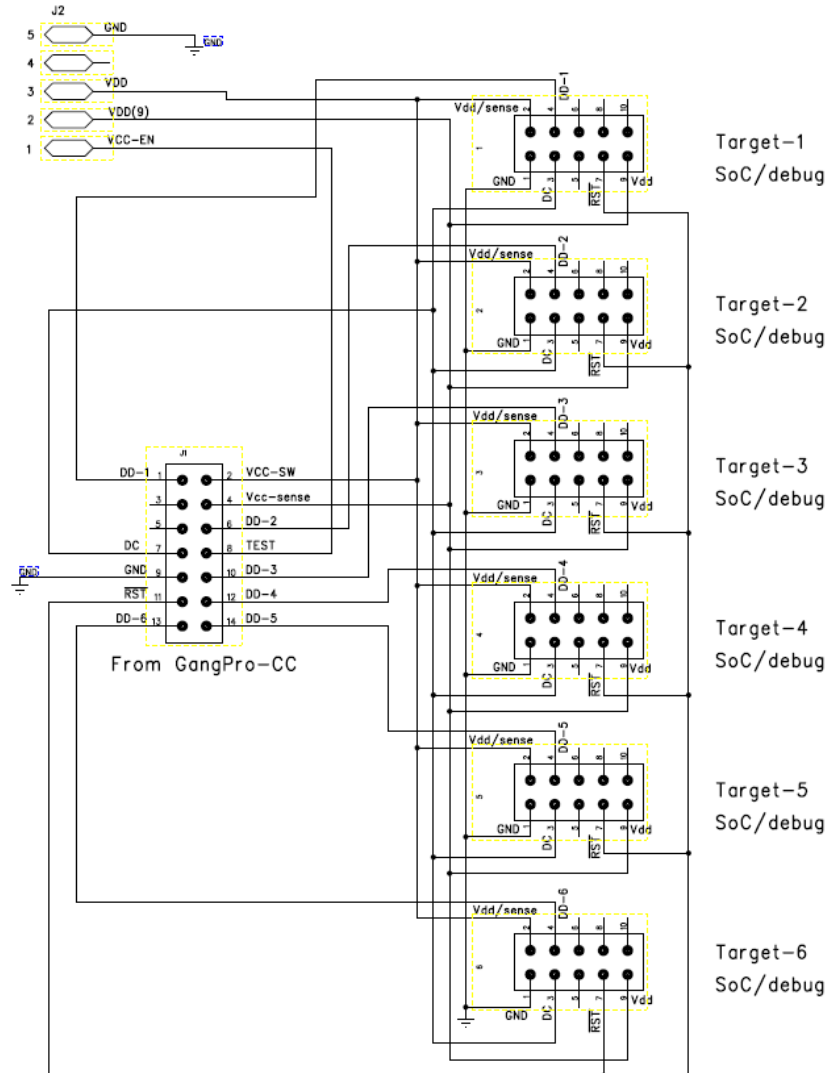
# Pinout in GangPro-CC

## 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 – TDO-4	Debug Data (DD) – 4
13 – TDO-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)



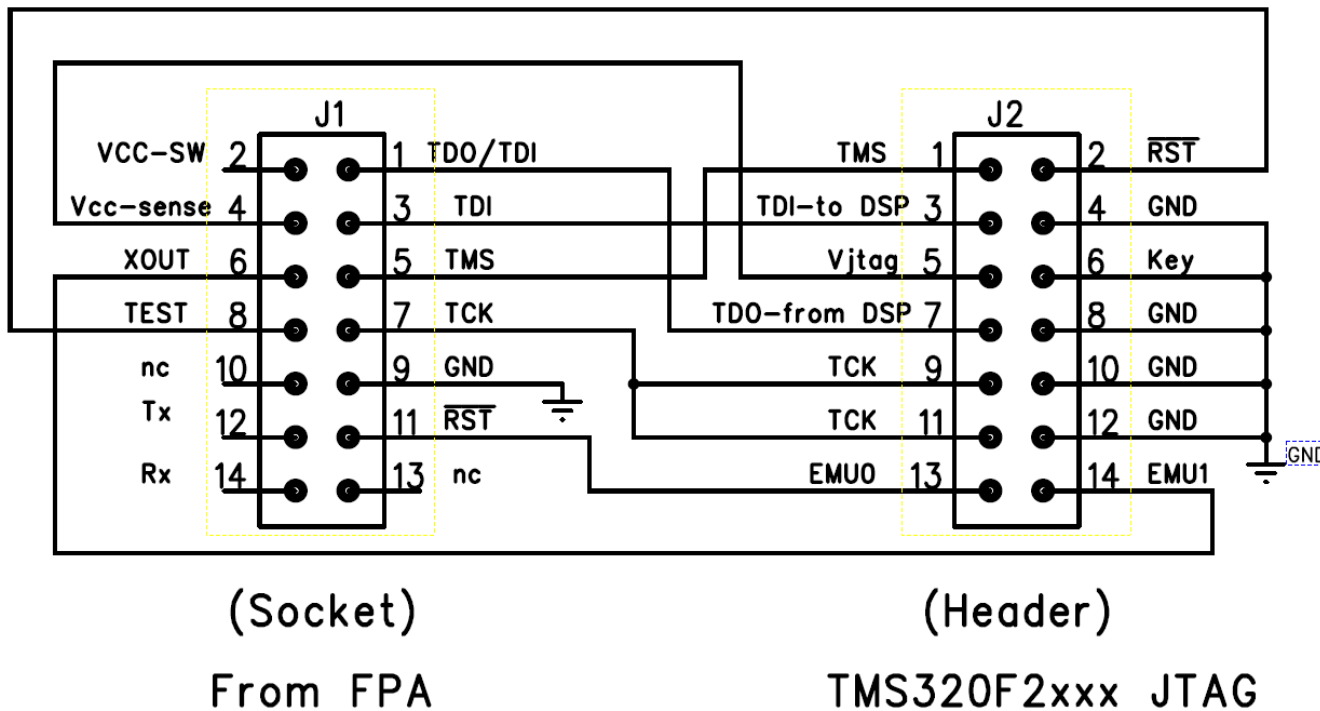
# Pinout in FlashPro-2000

## 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 – TDO-4	--	SCI – from MCU
13 – TDO-6	--	--
14 – TDOI-5	--	SCI – To MCU

# Pinout in FlashPro-2000

*Connection with TMS320F28xx via JTAG  
Adapter PN: PE034X02*



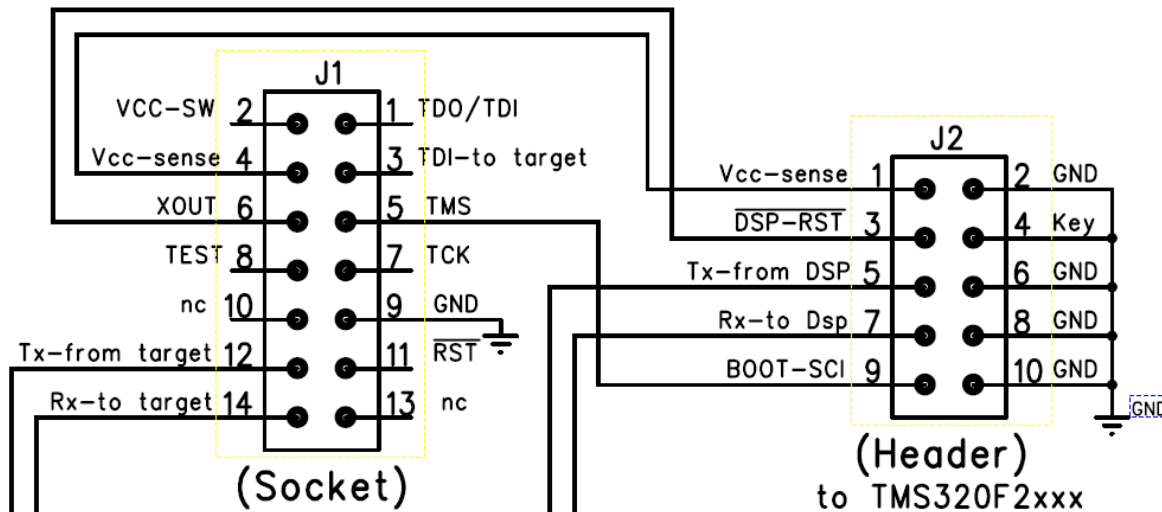
Connector PN:

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

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

# Pinout in FlashPro-M

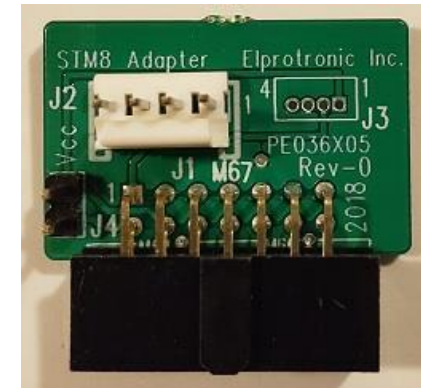
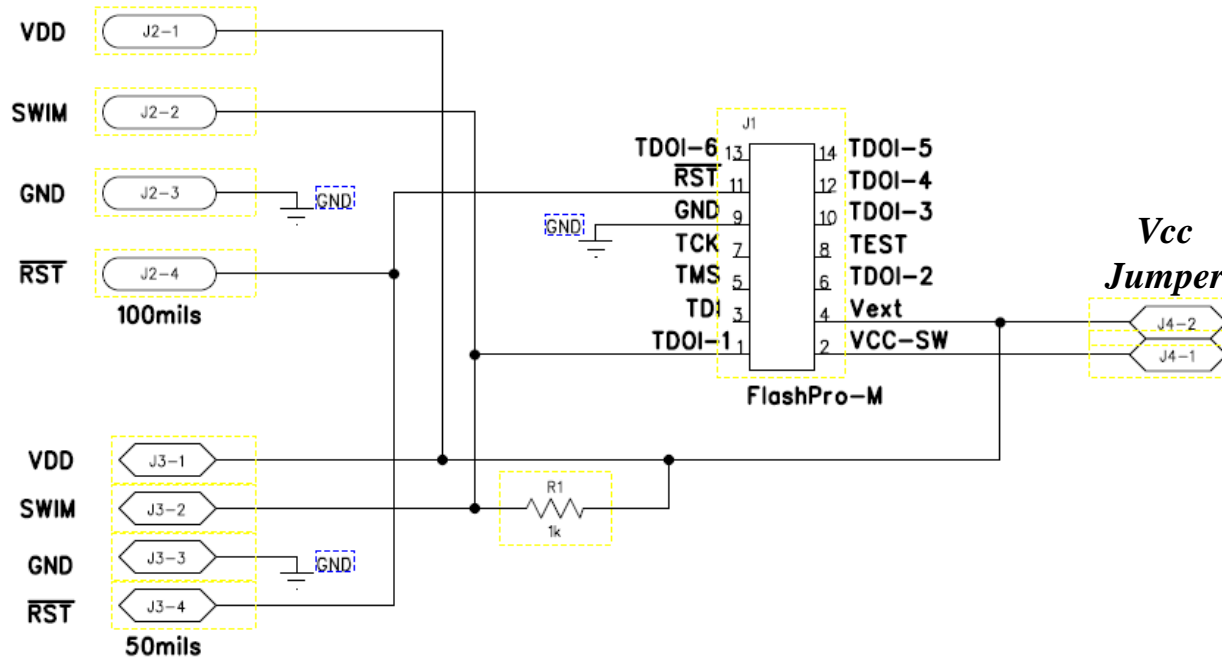
## Connection with STM-8 MCUs (ST Microelectronics)

*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 – TDO-4	--
13 – TDO-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 – TDO-4	SWIM – 4 (add 750 ohms pull-up to Vcc)
13 – TDO-6	SWIM – 6 (add 750 ohms pull-up to Vcc)
14 – TDOI-5	SWIM – 5 (add 750 ohms pull-up to Vcc)



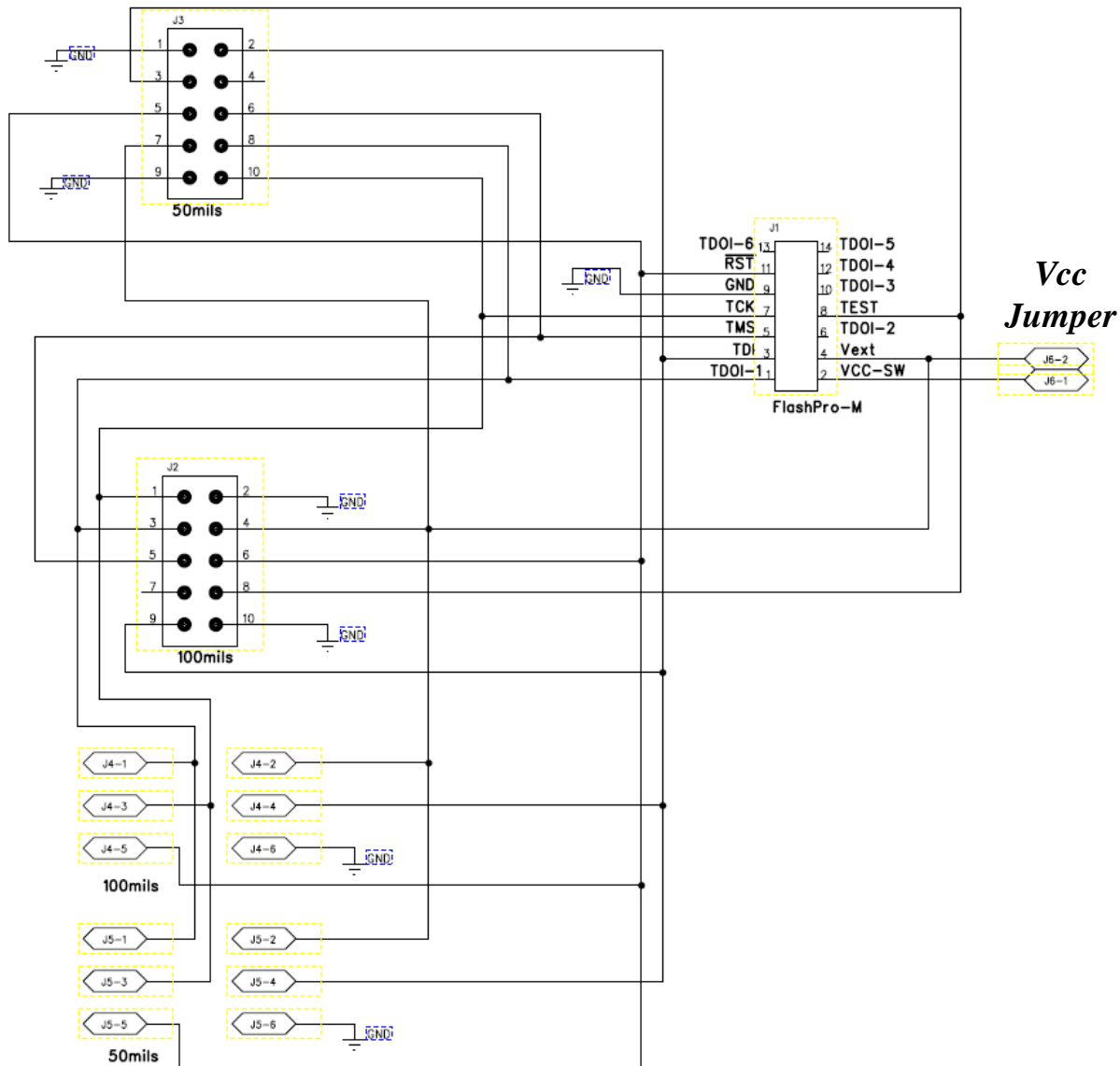
# Pinout in FlashPro-M

## Connection with 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 – TDO-4	--	MISO	--	--	--	--	--	--	--	--
13 – TDO-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 – TDO-4	--
13 – TDO-6	--
14 – TDOI-5	--

# Pinout in GangPro-M

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

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

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