

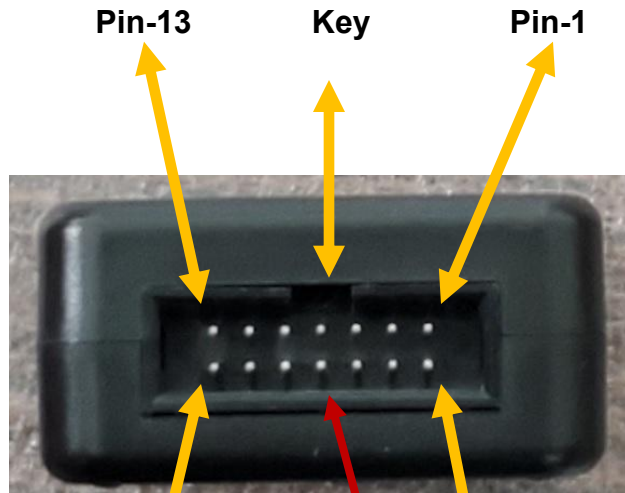


www.elprotronic.com

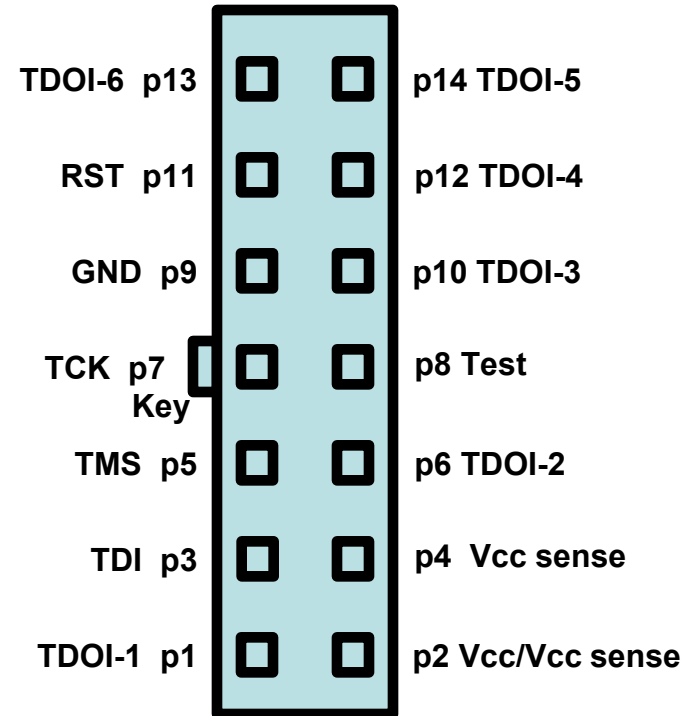
*Connection between targets and
Flash and Gang Programmers
XStream, XStreamPro, C-GANG and S-GANG
with
FlashPro-X and GangPro-X software*

*PM037A03 rev. 1.5
March-30-2026*

14-pin Connector from Programmer

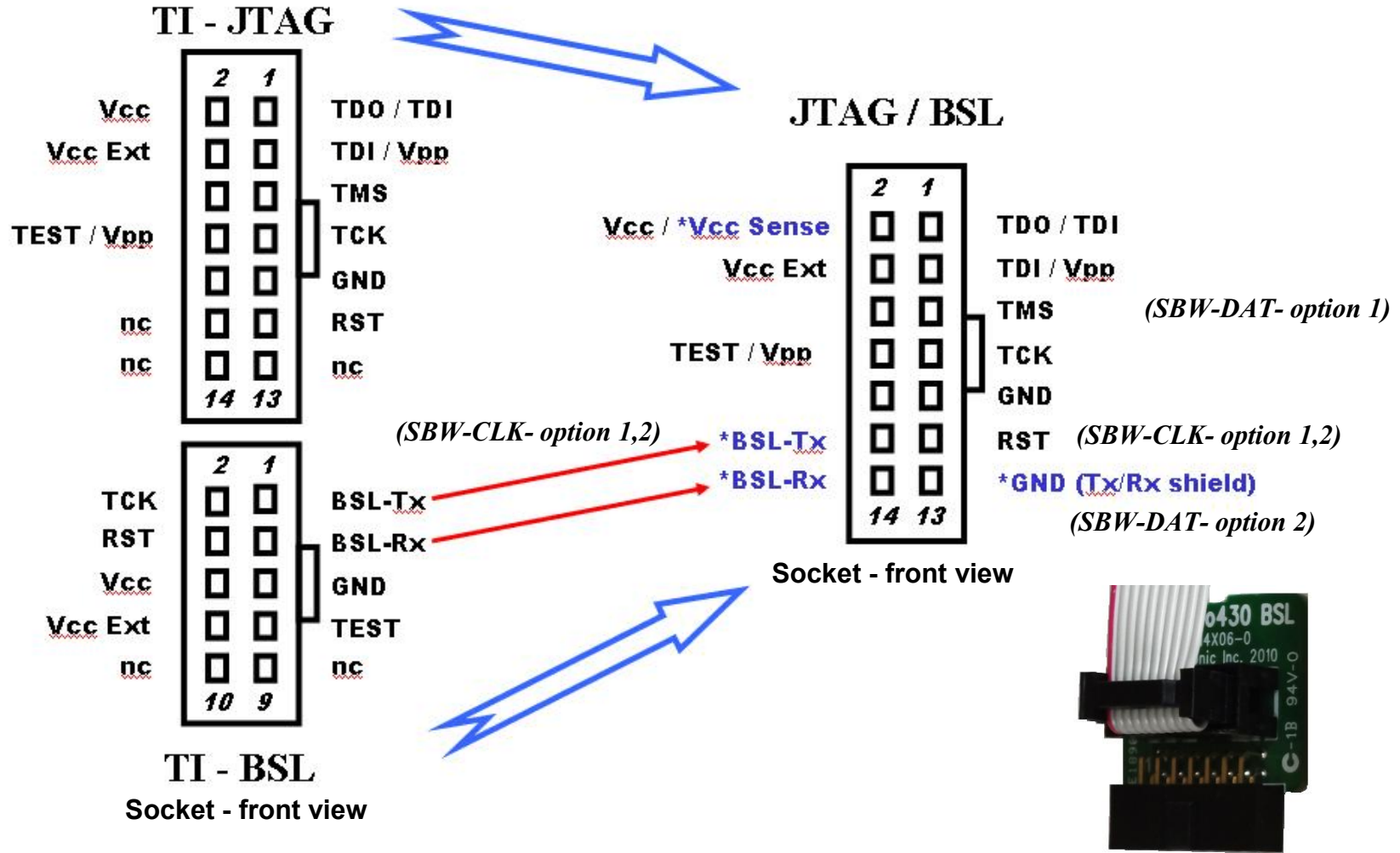


Connector PN:
SBH11-PBPC-D07-RA-BK
(Sullins)



Socket - front view

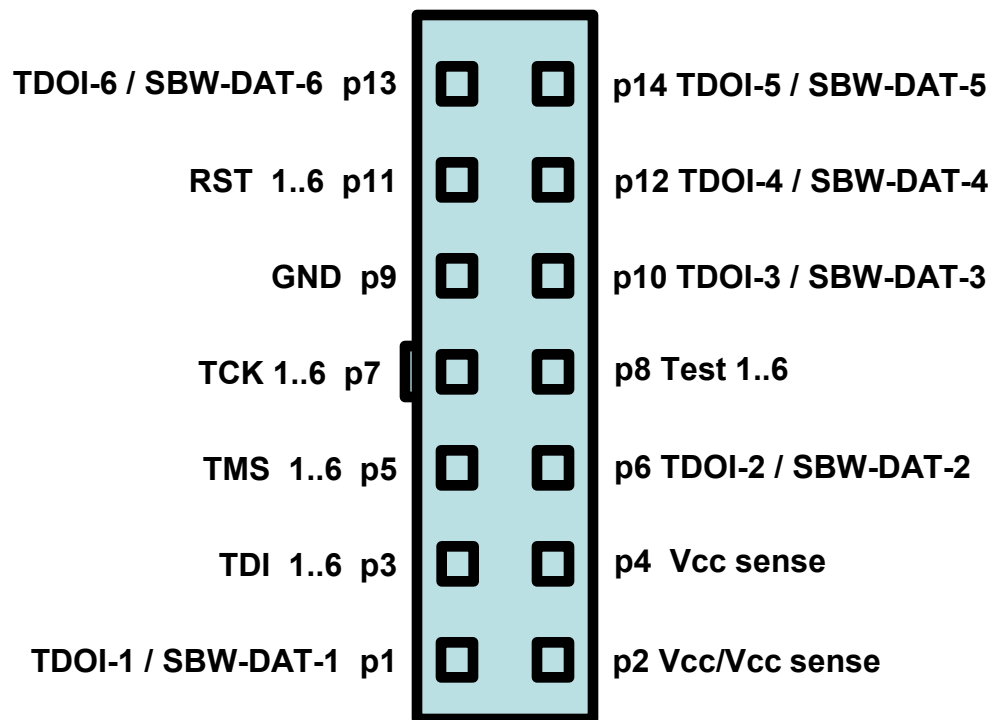
Pinout in FlashPro-X for MSP430 MCUs



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

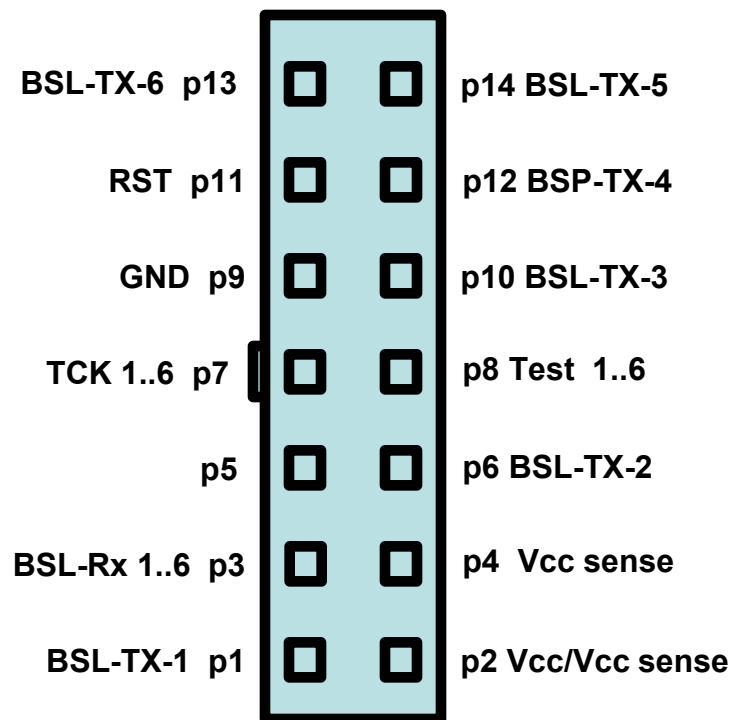
Pinout in GangPro-X for MSP430 MCUs

JTAG / SBW



Socket - front view

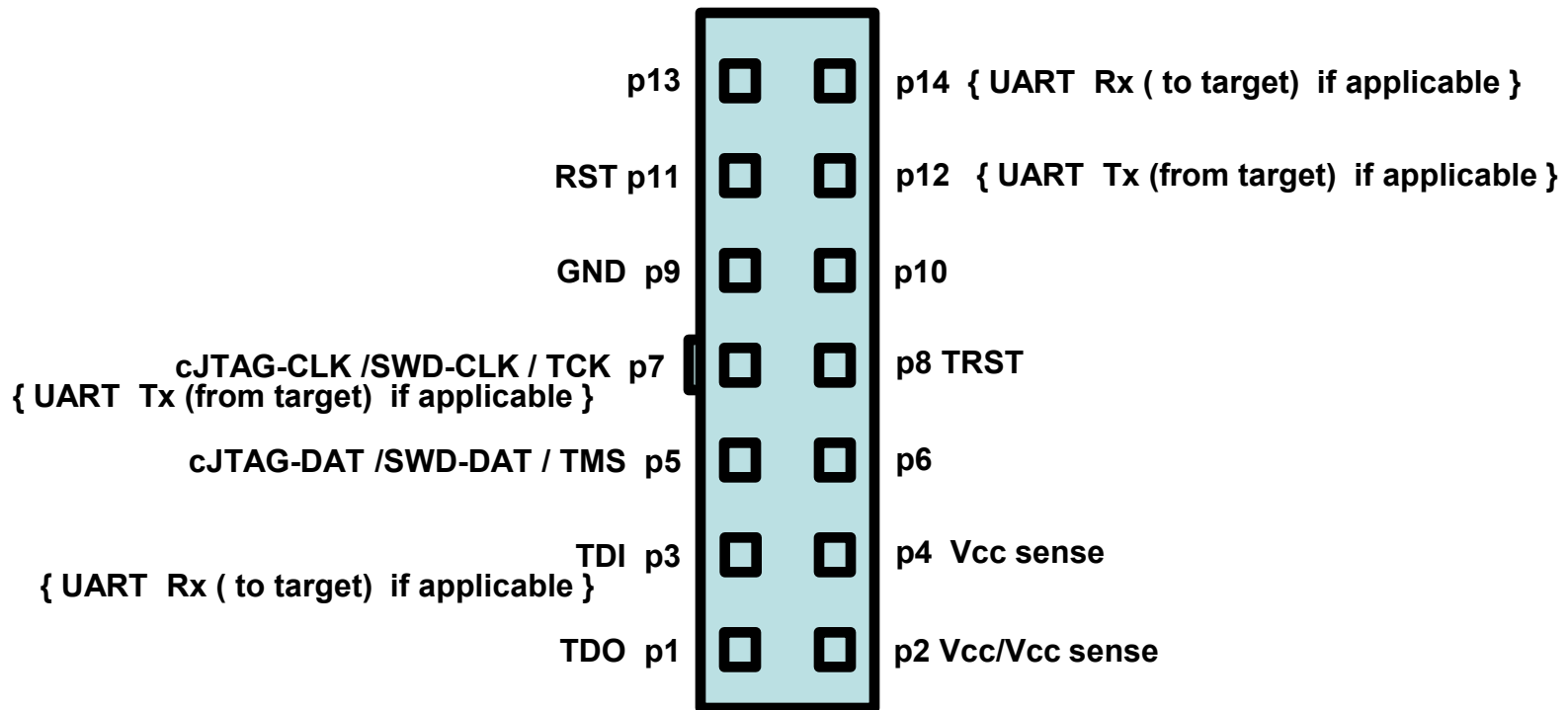
BSL



Socket - front view

Pinout in XStream / XStreamPro Adapters

JTAG / SWD



Socket - front view

S-GANG Splitter

PN : S-GANG-SP rev-2

S-Gang Splitter
PN: S-GANG-SP

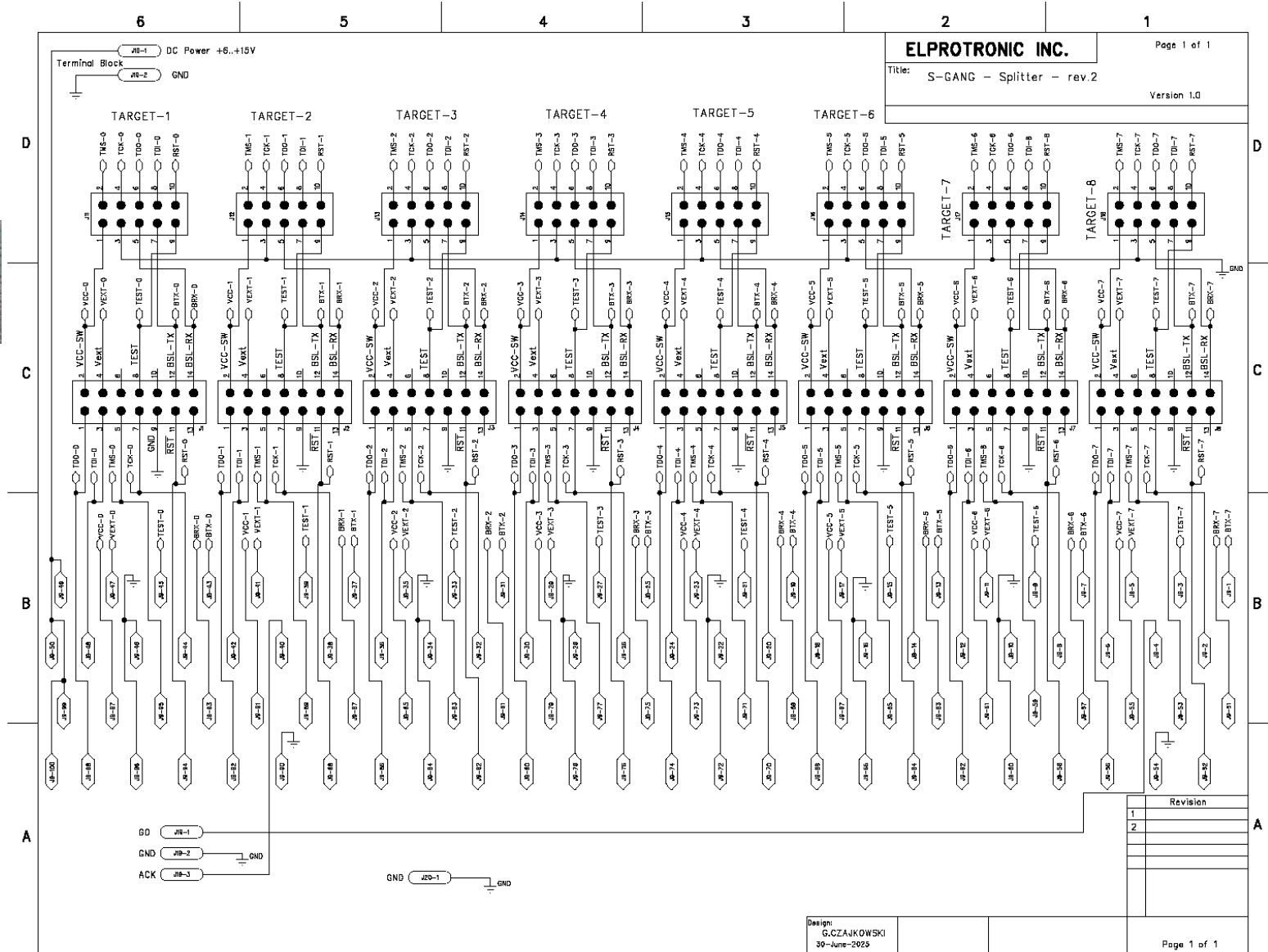


Connector PN:

3220-10-0100-00
(CNC Tech)

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

TX25-100P-LT-H1E
(JAE Electronics)



ELPROTRONIC INC. Page 1 of 1
 Title: S-GANG - Splitter - rev.2
 Version 1.0

C-GANG Splitter

MSP430 and ARM style (PN: PE063X06 – rev.2) – part of the package C-GANG-2SP

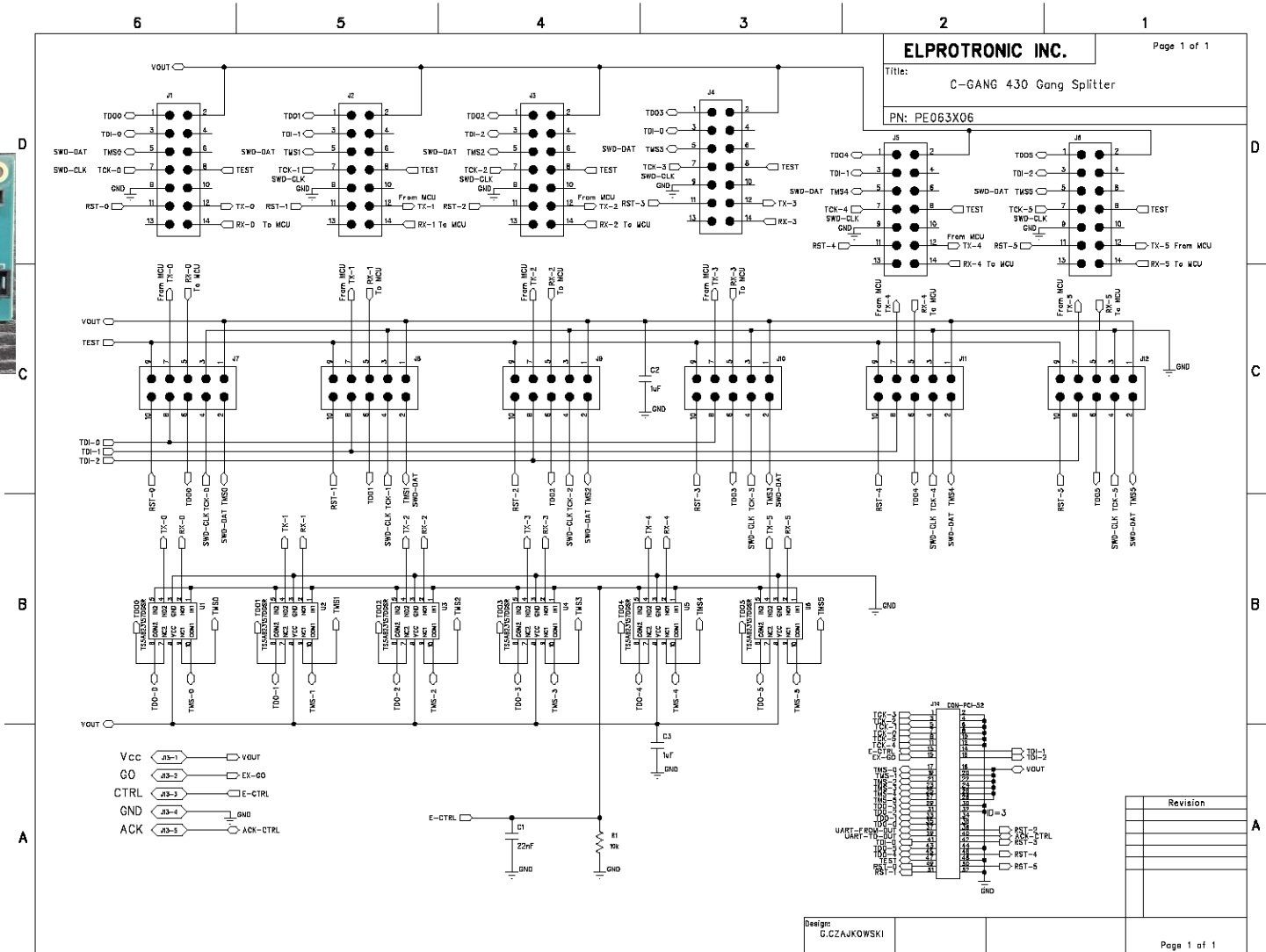


C-Gang Splitter
PN: PE063X06

Connector PN:

3220-10-0100-00
(CNC Tech)

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



ELPROTRONIC INC.
Title: C-GANG 430 Gang Splitter
PN: PE063X06

Page 1 of 1

Design: G.CZAJKOWSKI

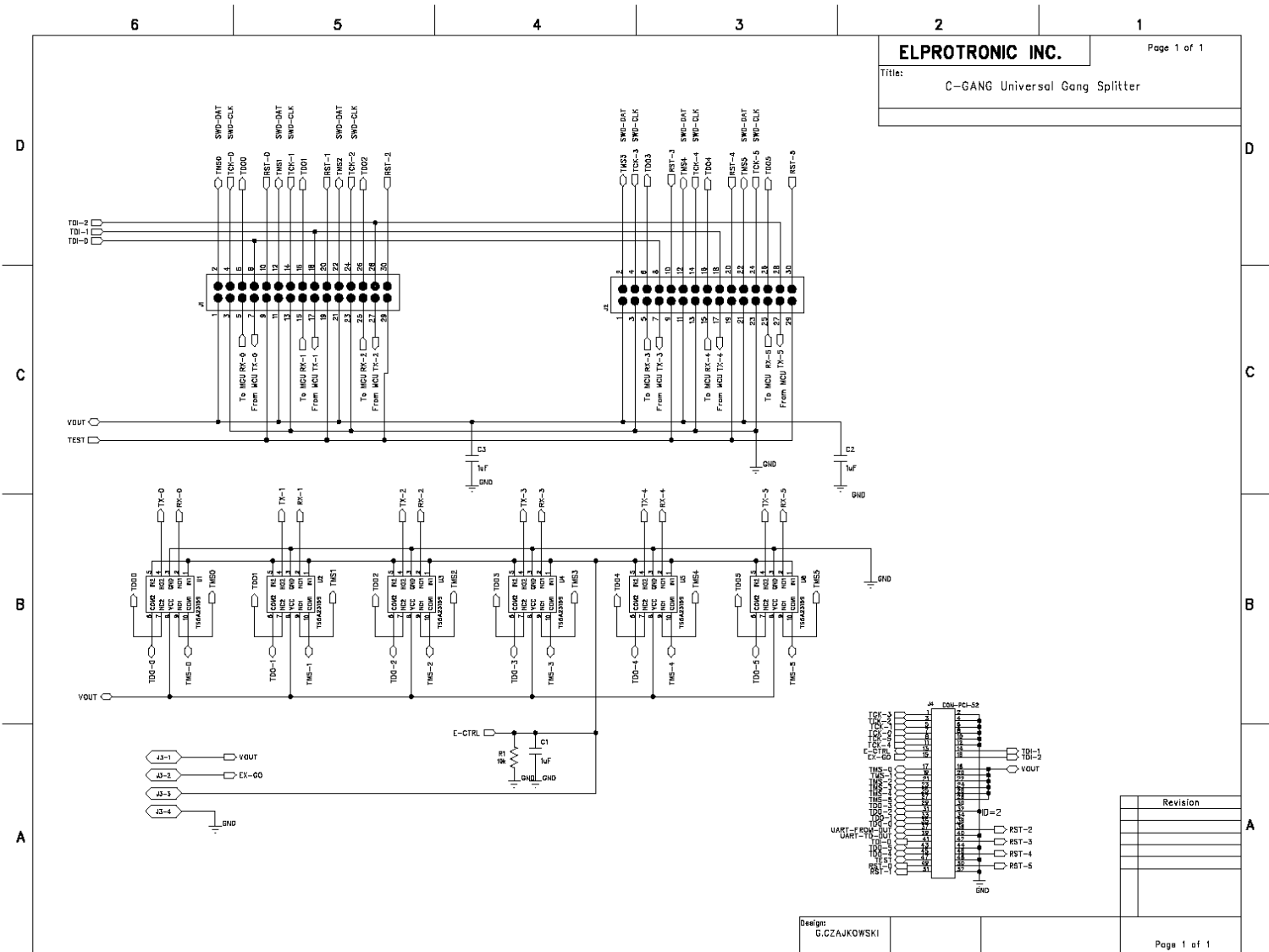
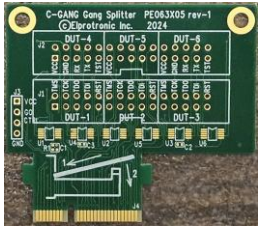
Page 1 of 1

Revision

Simplified C-GANG Splitter

(PN: PE063X05 – rev.1)

C-Gang Splitter
PN: PE063X05



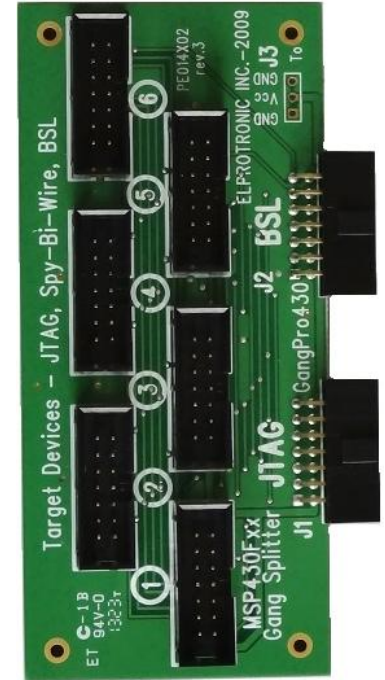
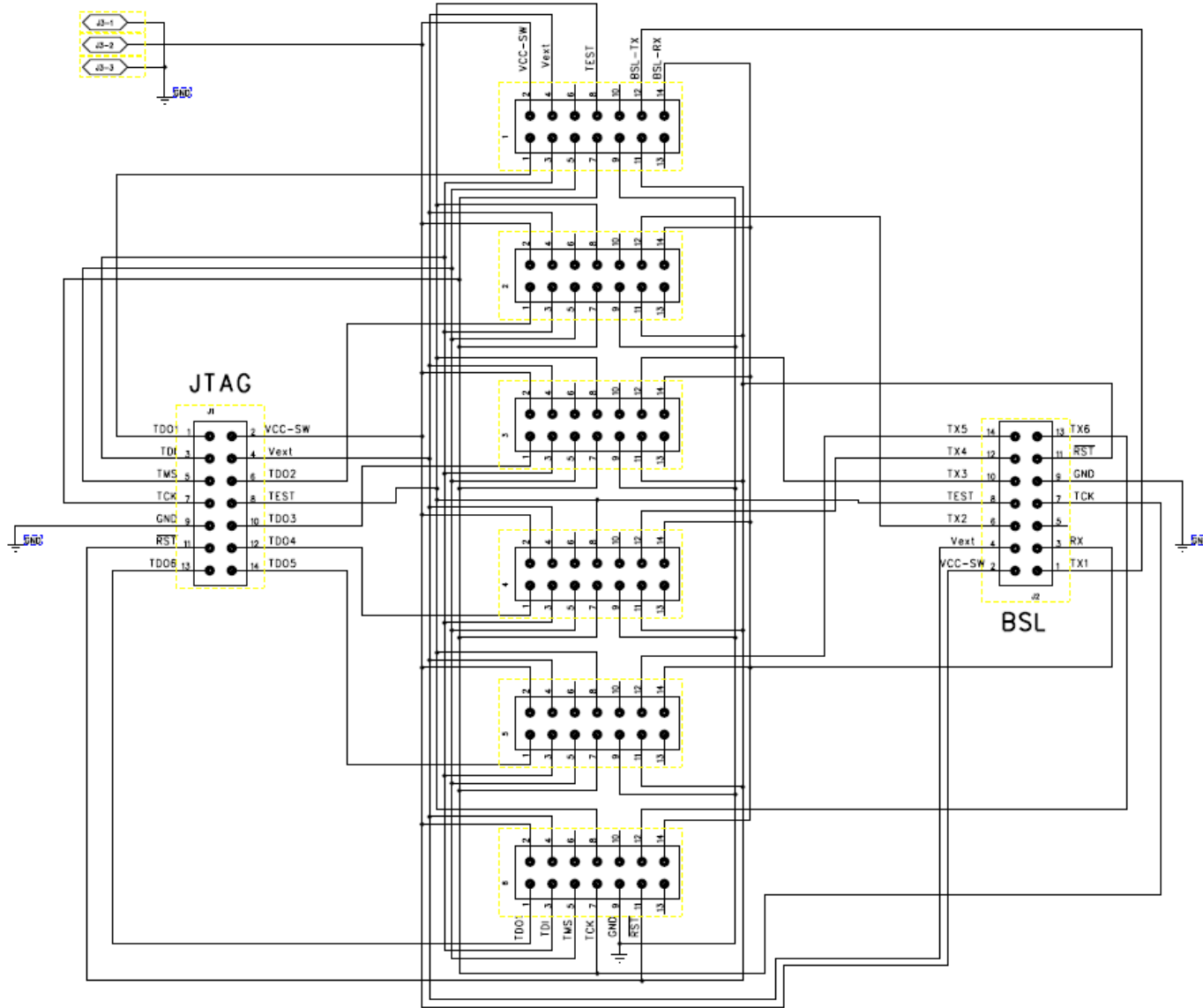
ELPROTRONIC INC. Page 1 of 1
Title: C-GANG Universal Gang Splitter

Design: G.CZAJKOWSKI

Revision

GangPro430 Splitter

PN: PE014X02



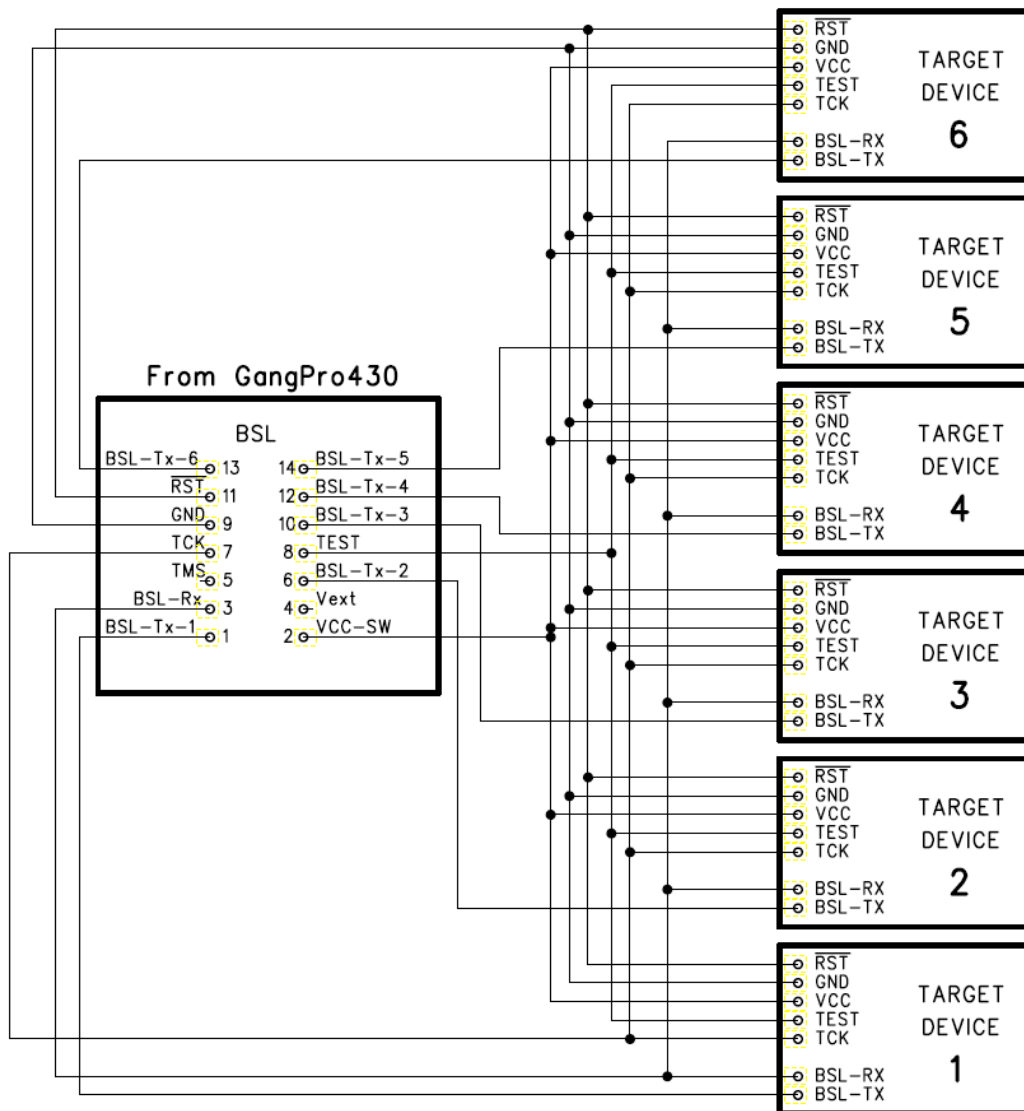
Connector PN:

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

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

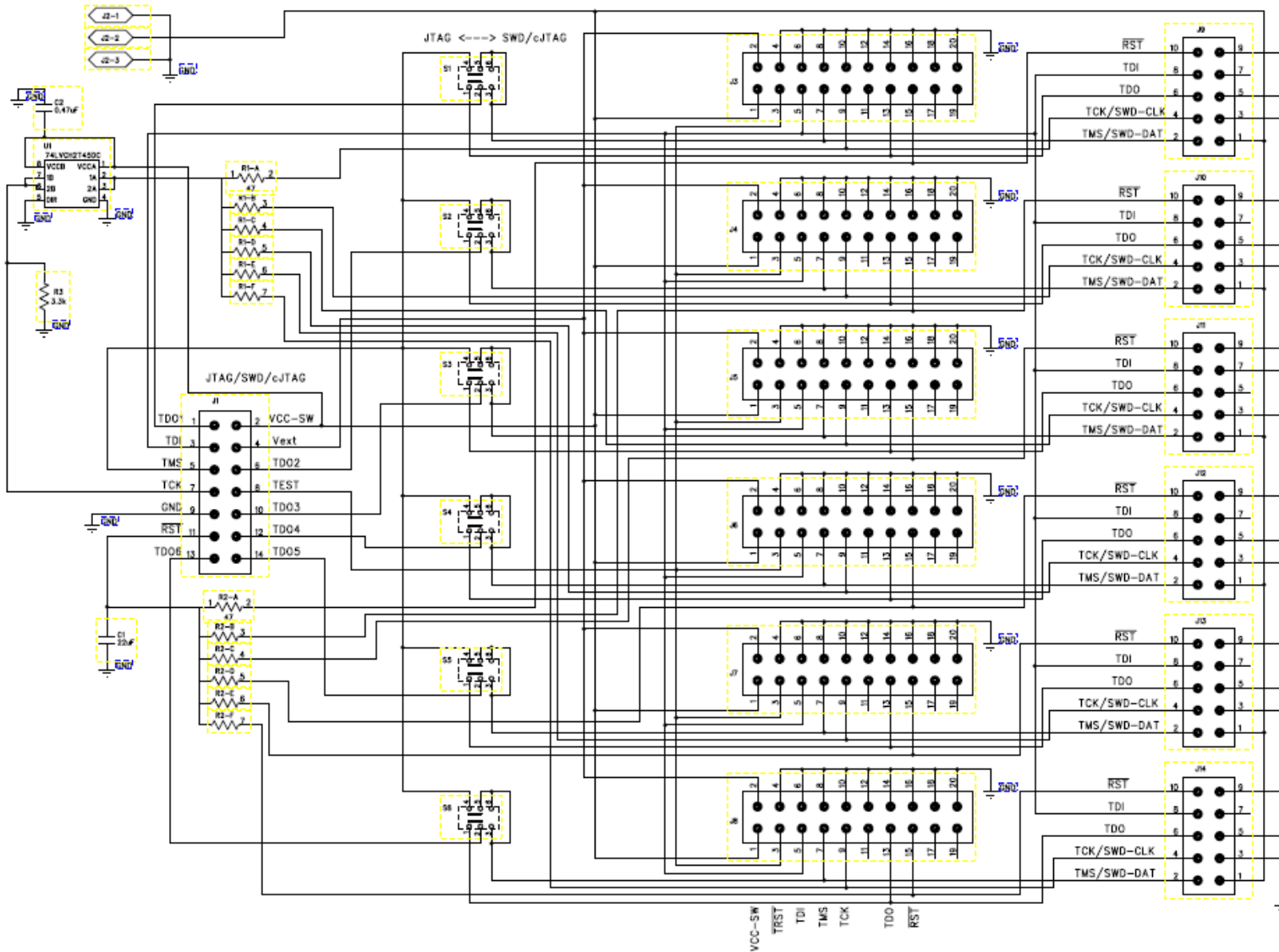
GangPro430 Splitter

BSL with GangPro430 connection



ARM Gang Splitter

PN: PE014X07 rev.3



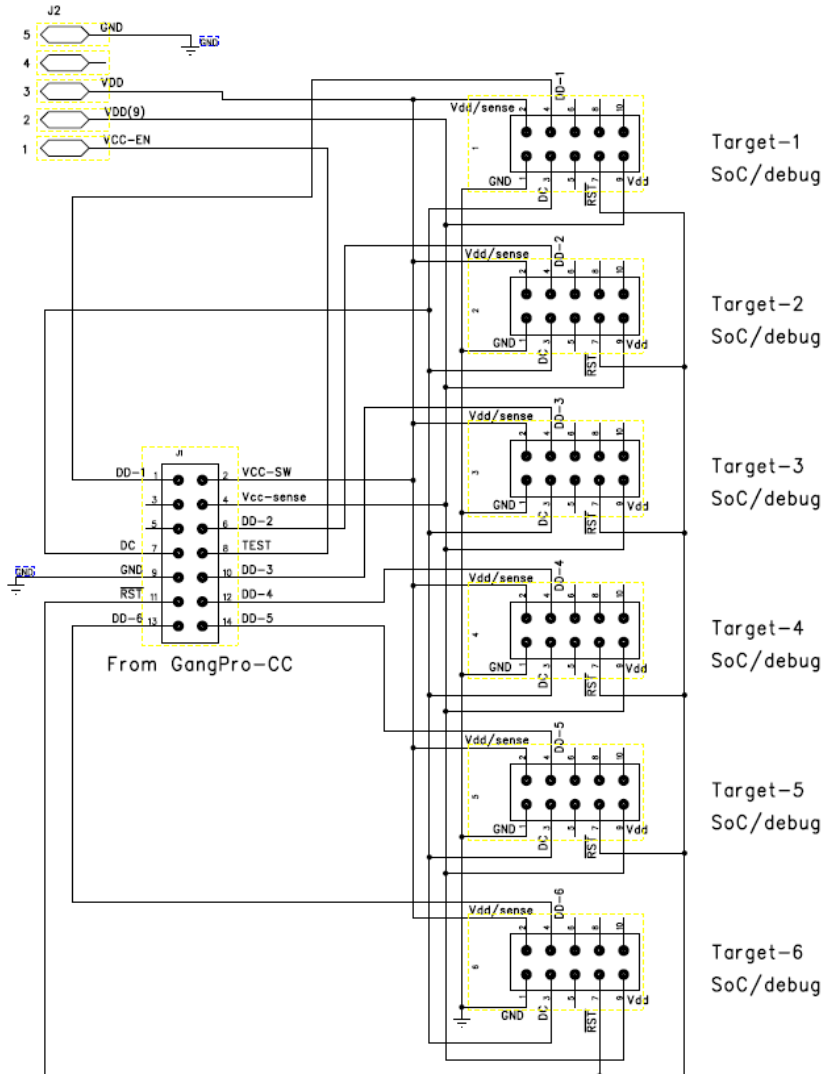
Connector PN:

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

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

GangPro-CC Splitter

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



CC Gang Splitter
PN: PE014X03



Connector PN:

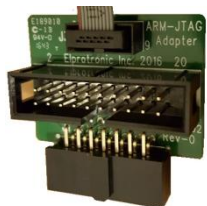
SBH11-PBPC-D05-ST-BK
 (Sullins)

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

ARM MCUs Adapter

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

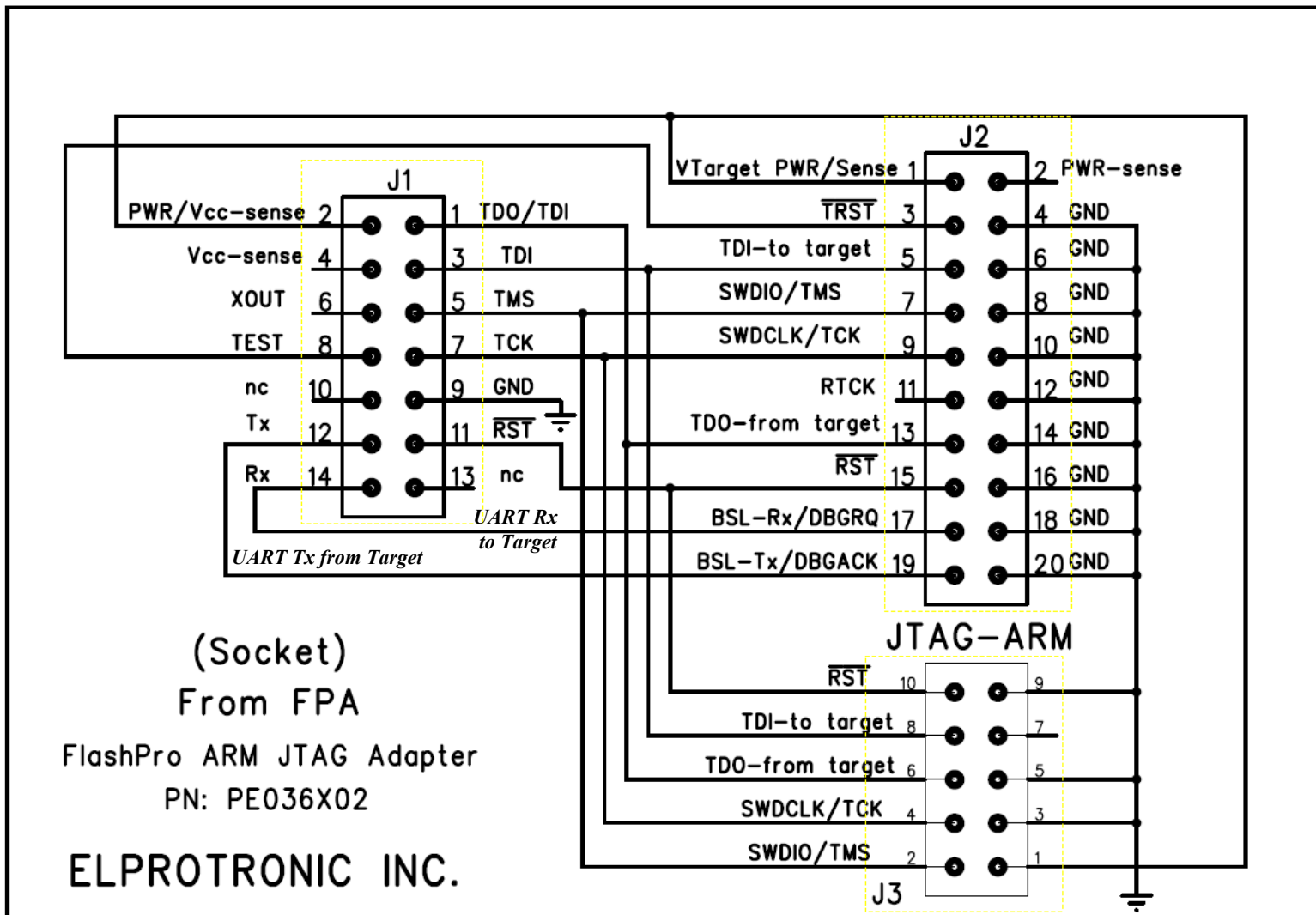
Adapter
PN: PE036X02



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

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

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

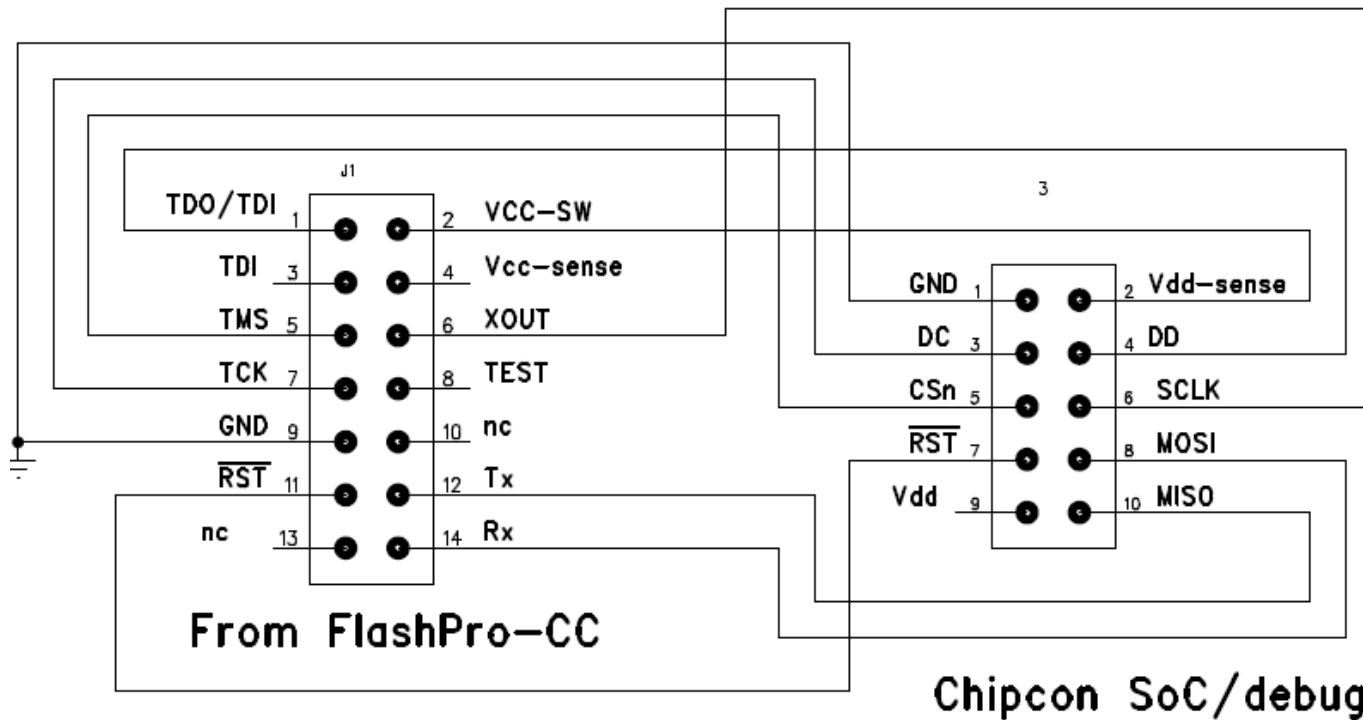


(Socket)
From FPA
FlashPro ARM JTAG Adapter
PN: PE036X02

ELPROTRONIC INC.

FlashPro-X and CCxx core 8051 MCUs

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)

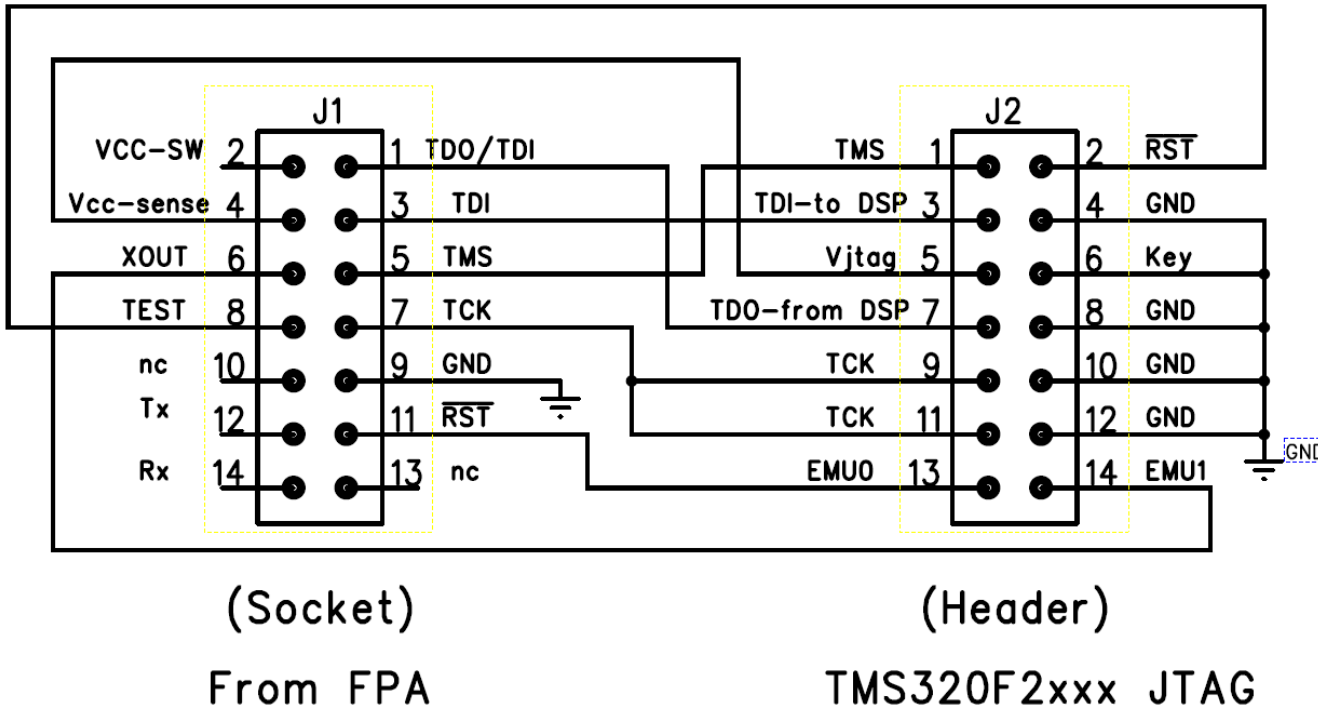
FlashPro-2000 for C2000 MCUs Adapter

PN: PE034X02 – rev.1

Elprotronic

www.elprotronic.com

Connection with TMS320F28xx via JTAG



Connector PN:

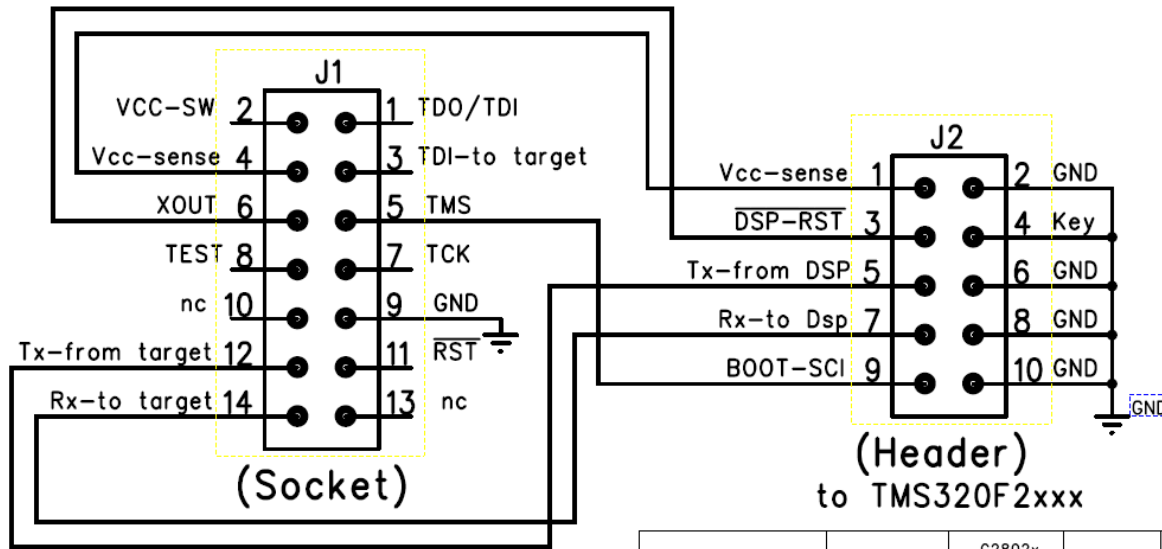
SBH11-PBPC-D07-ST-BK
(Sullins)

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

FlashPro-2000 for C2000 MCUs SCI Adapter

PN: PE034X01 rev.0

Connection with TMS320F28xx via SCI



From FPA

(Header)
to TMS320F2xxx



Connector PN:

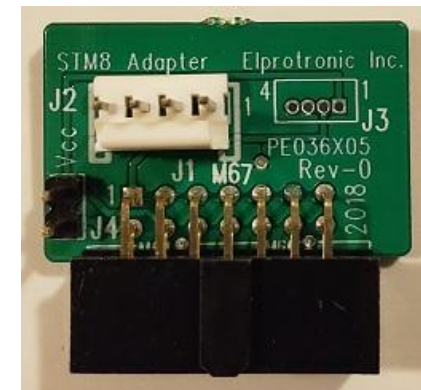
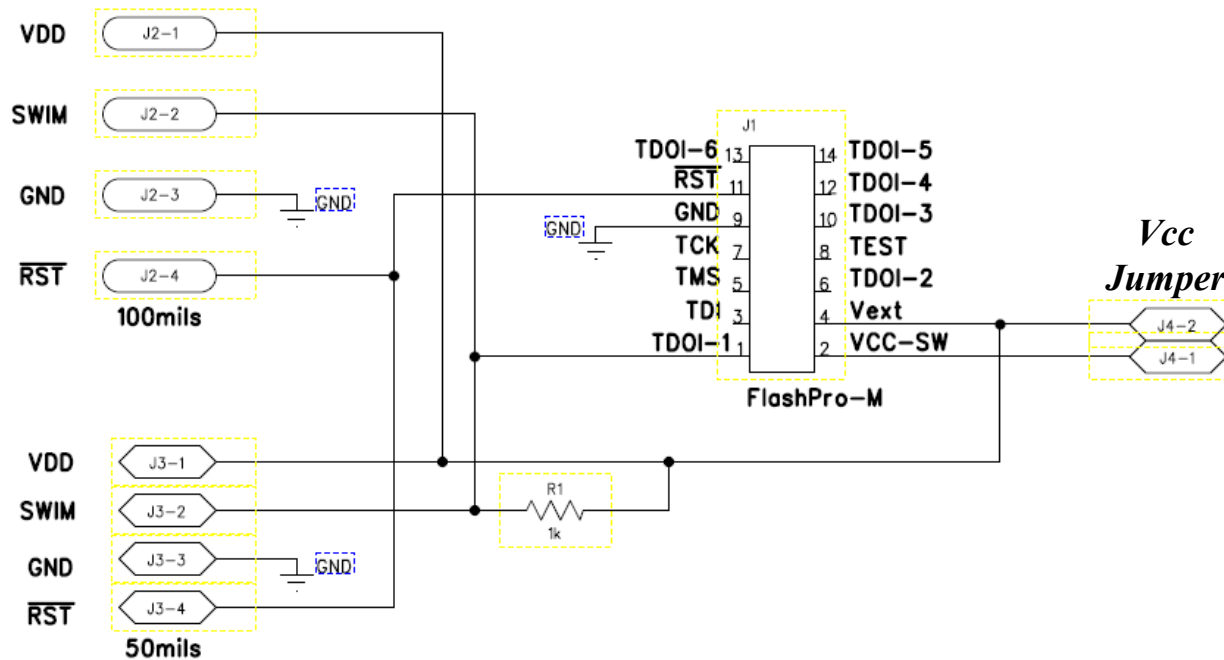
SBH11-PBPC-D05-ST-BK
(Sullins)

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	$\overline{\text{BOOT-EN}}$ via resistor	GPIO-37 (TDO)	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

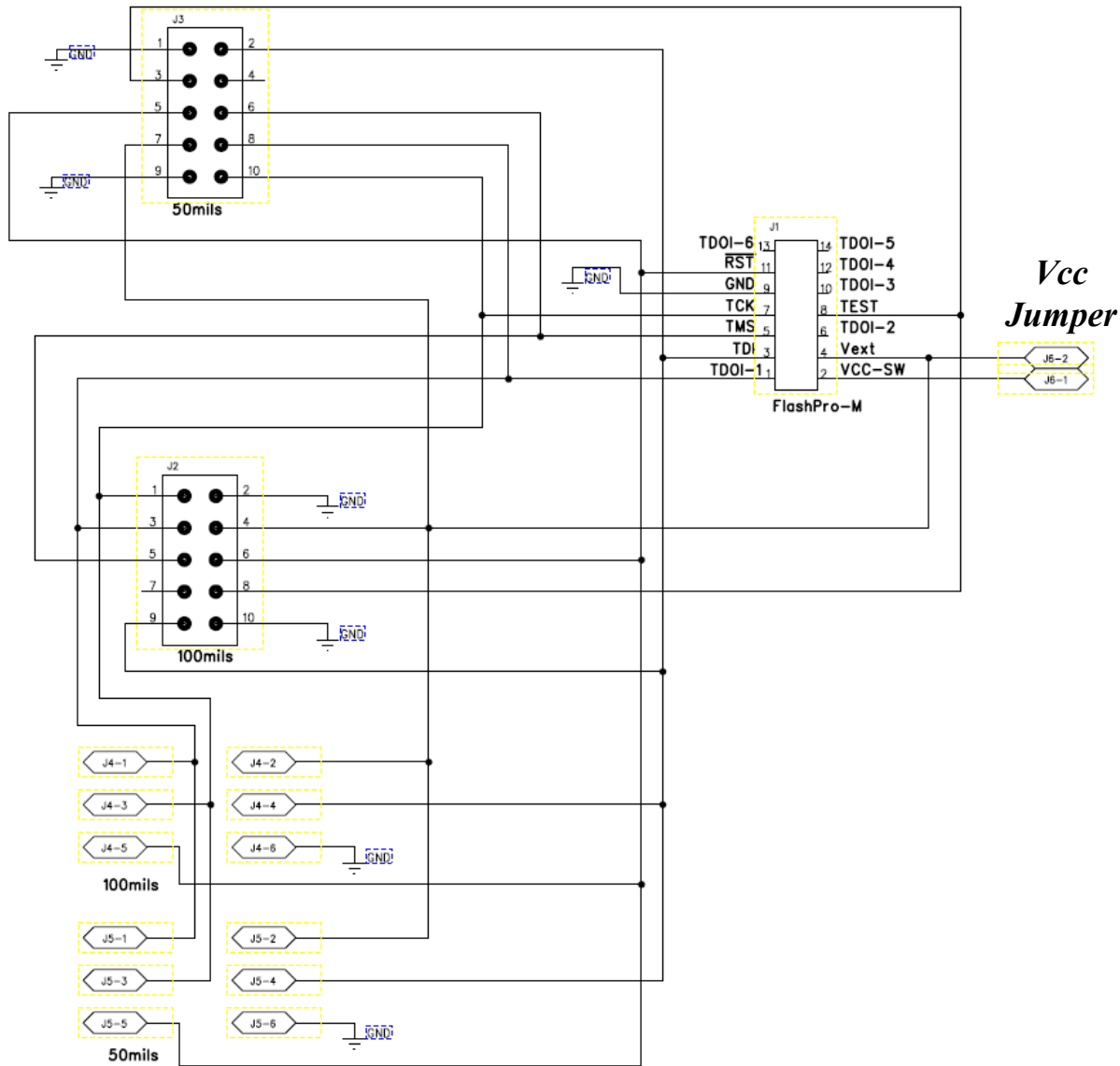
STM-8 Adapter

PN: PE036X05



AVR Adapter

PN: PE036X04



AVR Adapter
PN: PE036X04



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

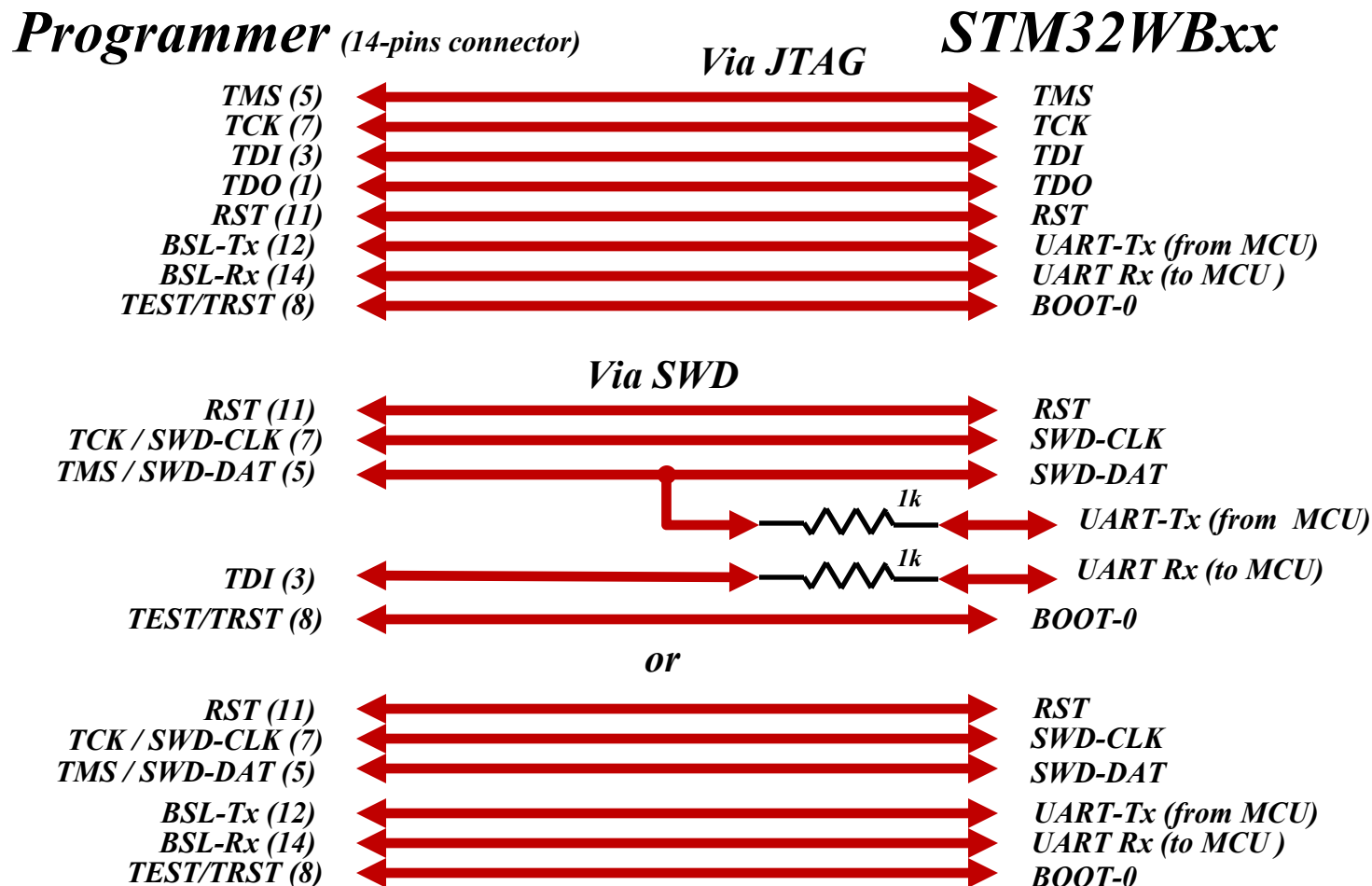
SBH11-PBPC-D05-ST-BK
(Sullins)

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

Connection in ARM MCUs

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

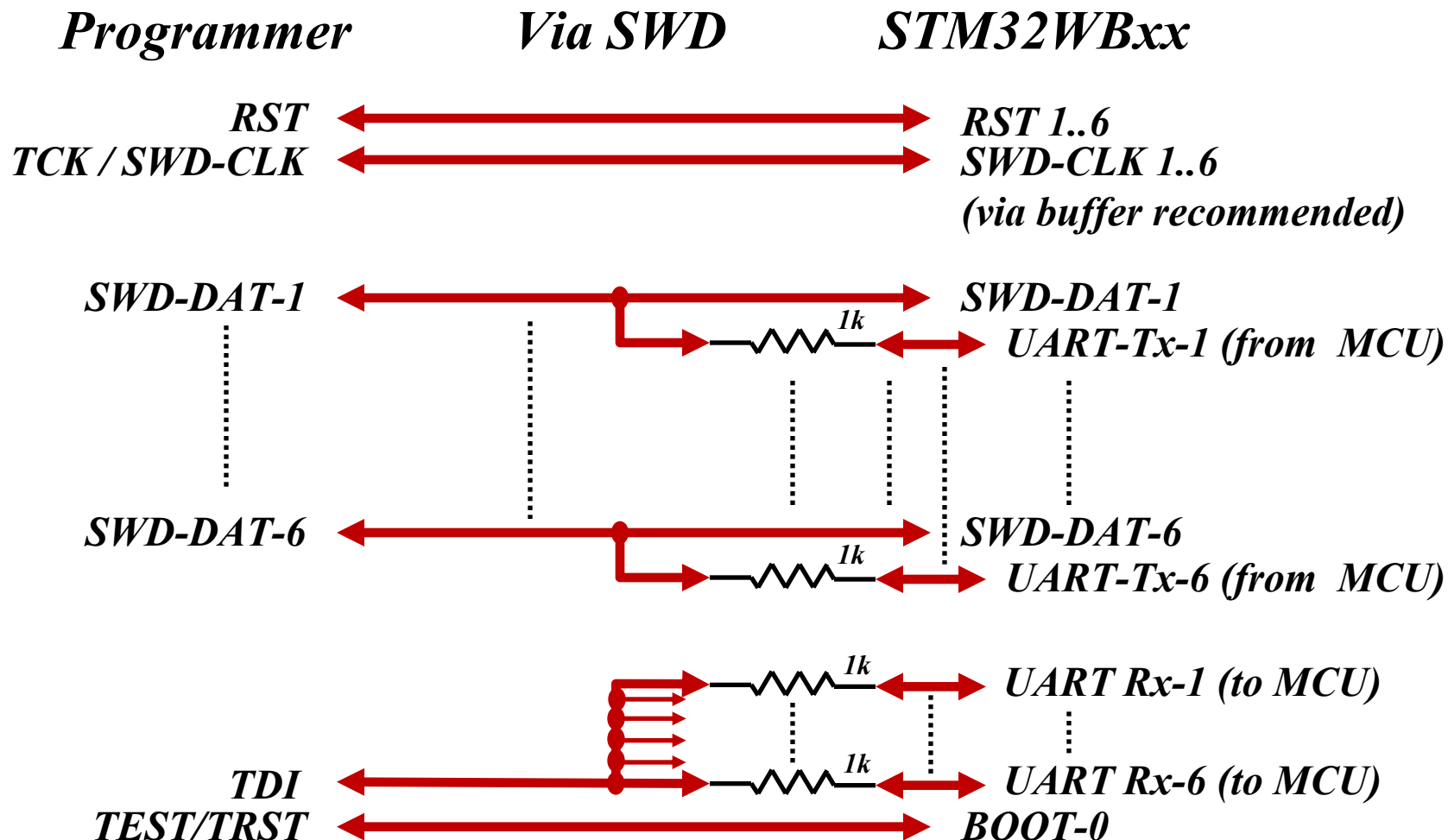
Note: Only with Xstream-Iso and XStreamPro-Iso Adapters. Not available in USB-FPA Adapters.



Connection in STMWBxx MCUs

Connection with STM32WBxx – with SWD and bootloader via UART.

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



Flash-X in ARM MCUs pinout

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

Note: Only with XStream-Iso, XStreamPro-Iso.

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	--	--	
4 – Vcc sense	Vcc sense	Vcc sense	Vcc sense	Vcc sense
5 – TMS	TMS	SWD-DAT	--	
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

GangPro-X and ARM core MCUs pinout

Connection with ARM core MCU

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

XStream and XStreamPro Adapters

Programmer 14-pins connector	JTAG connection	SWD connection
1 – TDOI-1	TDO - 1	SWDAT-1
2 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	TDI-1...6	
4 – Vcc sense	Vcc sense	Vcc sense
5 – TMS	TMS-1...6	
6 – TDOI-2	TDO – 2	SWDAT-2
7 – TCK	TCK-1...6	SWCLK-1...6
8 – TEST	--	
9 – GND	GND	GND
10 – TDOI-3	TDO – 3	SWDAT-3
11 – RST	RST	RST-1...6
12 – TDOI-4	TDO – 4	SWDAT-4
13 – TDOI-6	TDO – 6	SWDAT-6
14 – TDOI-5	TDO - 5	SWDAT-5

C-GANG and S-GANG Adapters on each Gang Splitter connectors

Programmer 14-pins connector	Programmer 10-pins connector	JTAG connection	SWD connection
1 – TDOI-1	6 – TDOI	TDO	
2 – Vcc / Vcc sense	1 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	8 – TDI	TDI	
4 – Vcc sense	---	Vcc sense	Vcc sense
5 – TMS	2 – TMS	TMS	SWDAT
---	---		
7 – TCK	4 – TCK	TCK	SWCLK
8 – TEST	9 – TEST		
9 – GND	3 – GND	GND	GND
---	---		
11 – RST	10 – RST	RST	RST
12 – BST-TX	7 – BST-TX		
---	---		
14 – BST-RX	5 – BST-RX		

Flash-X in MSP430 MCUs pinout

Connection for MSP430 with multi protocol – JTAG / SBW / BSL

Note: Only with XStream-Iso, XStreamPro-Iso.

Programmer 14-pins connector	JTAG	SBW	BSL
1 – TDOI-1	TDO/I	Reset / SBW-DAT	-
2 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	TDI	--	--
4 – Vcc sense	Vcc sense	Vcc sense	Vcc sense
5 – TMS	TMS	SWD-DAT	--
6 – TDOI-2	--	--	--
7 – TCK	TCK	SBW-CLK	TCK
8 – TEST	TEST	SBW-CLK	TEST
9 – GND	GND	GND	GND
10 – TDOI-3	--	--	--
11 – RST	Reset	Reset / SBW-DAT	Reset
12 – TDOI-4	--	--	BSL-Tx (from MCU)
13 – TDOI-6	--	--	--
14 – TDOI-5	--	--	BSL Rx (to MCU)

GangPro-X and MSP430 core MCUs pinout

Connection with MSP430 core MCU

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

XStream and XStreamPro Adapters

Programmer 14-pins connector	JTAG connection	SBW connection	BSL connection
1 – TDOI-1	TDO - 1	SBW-DAT-1 /RST	BSL-Tx-1
2 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	TDI-1...6		BSL-Rx-1...6
4 – Vcc sense	Vcc sense	Vcc sense	Vcc sense
5 – TMS	TMS-1...6		
6 – TDOI-2	TDO – 2	SBW-DAT-2/RST	BSL-Tx-2
7 – TCK	TCK-1...6	SBWCLK-1...6/TEST	CLK-1...6
8 – TEST	TEST-1...6	SBWCLK-1...6/TEST	TEST-1...6
9 – GND	GND	GND	GND
10 – TDOI-3	TDO – 3	SBW-DAT-3/RST	BSL-Tx-3
11 – RST	RST		RST-1...6
12 – TDOI-4	TDO – 4	SBW-DAT-4/RST	BSL-Tx-4
13 – TDOI-6	TDO – 6	SBW-DAT-6/RST	BSL-Tx-6
14 – TDOI-5	TDO - 5	SBW-DAT-5/RST	BSL-Tx-5

C-GANG and S-GANG Adapters on each Gang Splitter connectors

Programmer 14-pins connector	Programmer 10-pins connector	JTAG connection	SBW connection	BSL connection
1 – TDOI-1	6 – TDOI	TDO	SBW-DAT/RST	
2 – Vcc / Vcc sense	1 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	8 – TDI	TDI		
4 – Vcc sense	---	Vcc sense	Vcc sense	Vcc sense
5 – TMS	2 – TMS	TMS		
---	---			
7 – TCK	4 – TCK	TCK	SBW-CLK/TEST	TCK
8 – TEST	9 – TEST	TEST	SBW-CLK/TEST	TEST
9 – GND	3 – GND	GND	GND	GND
---	---			
11 – RST	10 – RST	RST		RST
12 – BST-TX	7 – BST-TX			BSL-Tx
---	---			
14 – BST-RX	5 – BST-RX			BSL-Rx

FlashPro-X and CCxx 8051 core MCUs pinout

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	--

GangPro-X and Cxx 8051 core MCUs pinout

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

Note: Only with XStream-Iso, XStreamPro-Iso, C-GANG and S-GANG Adapters. Not available with USB-FPA Adapters.

XStream and XStreamPro Adapters

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

C-GANG and S-GANG Adapters on each Gang Splitter connectors

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

FlashPro-X for C2000 MCUs pinout

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

GangPro-X and C2000 core MCUs pinout

Connection with C2000 MCU via JTAG / cJTAG Port

Note: C-GANG and S-GANG Adapters.

XStream and XStreamPro Adapters

**C2000 MCUs are not supported in
GangPro-X and Xstream / XStreamPro
programmers**

C-GANG and S-GANG Adapters on each Gang Splitter connectors

Programmer 14-pins connector	Programmer 10-pins connector	JTAG connection	cJTAG connection
1 – TDOI-1	6 – TDOI	TDO	
2 – Vcc / Vcc sense	1 – Vcc / Vcc sense	Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	8 – TDI	TDI	
Vcc sense	---	Vcc sense	Vcc sense
5 – TMS	2 – TMS	TMS	cJTAG-DAT
7 – TCK	4 – TCK	TCK	cJTAG-CLK
8 – TEST	9 – TEST	--	
9 – GND	3 – GND	GND	GND
11 – RST	10 – RST	RST	RST
12 – BST-TX	7 – BST-TX		
14 – BST-RX	5 – BST-RX		

FlashPro-X for Serial Flash pinout

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	--	--

GangPro-X and Serial Flash pinout

Connection with Serial Flash via SPI and EEPROM via I2C

Note: Only with XStream-Iso, XStreamPro-Iso, C-GANG and S-GANG Adapters. Not available with USB-FPA Adapters.

XStream and XStreamPro Adapters

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

C-GANG and S-GANG Adapters on each Gang Splitter connectors

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

FlashPro-X and STM-8 MCUs pinout

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	--

GangPro-X and STM-8 MCUs pinout

Connection with STM-8 (ST Microelectronics)

Note: Only with XStream-Iso, XStreamPro-Iso, C-GANG and S-GANG Adapters. Not available with USB-FPA Adapters.

XStream and XStreamPro Adapters

C-GANG and S-GANG Adapters on each Gang Splitter connectors

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)

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

FlashPro-X and AVR MCUs pinout

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

FlashPro-X and PIC MCUs pinout

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	--

GangPro-X and AVR MCUs pinout

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	TCK 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

GangPro-X and AVR MCUs pinout

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

Note: Only with C-GANG and S-GANG Adapters.

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

FlashPro-X and RL-78 MCUs pinout

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	--

GangPro-X and RL78 MCUs pinout

Connection with RL-78 (Renesas Electronics)

Note: Only with XStream-Iso, XStreamPro-Iso, C-GANG and S-GANG Adapters. Not available with USB-FPA Adapters.

XStream and XStreamPro 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)

C-GANG and S-GANG Adapters on each Gang Splitter connectors

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

FlashPro-X and iMOTION MCUs pinout

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	--

GangPro-X and iMOTION MCUs

Connection with MCE and ARM MCUs (Infineon)

Note: Only with XStream-Iso, XStreamPro-Iso, C-GANG and S-GANG Adapters. Not available with USB-FPA Adapters.

XStream and XStreamPro Adapters

Programmer 14-pins connector	UART
1 – TDOI-1	Input from UART-Tx1 (*1) or SWDAT-1
2 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	Output to UART-Rx (to all MCEs)
4 – Vcc sense	Vcc sense
5 – TMS	--
6 – TDOI-2	Input from UART-Tx2 (*1) 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 (*1) or SWDAT-3
11 – RST	--
12 – TDOI-4	Input from UART-Tx4 (*1) or SWDAT-4
13 – TDOI-6	Input from UART-Tx6 (*1) or SWDAT-6
14 – TDOI-5	Input from UART-Tx5 (*1) or SWDAT-5

Note (*1): add 22k pull-up resistor

C-GANG and S-GANG Adapters on each Gang Splitter connectors

Programmer 14-pins connector	Programmer 10-pins connector	UART
1 – TDOI	6 – TDOI	Input from UART-Tx (*1)
2 – Vcc / Vcc sense	1 – Vcc / Vcc sense	Vcc / Vcc sense
3 – TDI	8 – TDI	Output to UART-Rx (*1)
4 --		
5 – TMS	2 – TMS	SWDAT
6 --		
7 – TCK	4 – TCK	SWCLK
8 – TEST	9 – TEST	
9 – GND	3 – GND	GND
10 --		
11 – RST	10 – RST	RST
12 – BST-TX	7 – BST-TX	
13 --		
14 – BST-RX	5 – BST-RX	