

## 5 Additional Information

For more information on the TI Emulation and Trace JTAG headers, including PC board layout considerations for these high-speed signals, please refer to the TI document, SPRU655.

You can find the latest version online at:

<http://www-s.ti.com/sc/techlit/spru655.pdf>

SIGNAL	TI 14-PIN PIN	cTI 20-PIN PIN	MIPI 60-PIN PIN	SIGNAL
TMS	1	1	2	TMS
nTRST	2	2	8	nTRST
TDI	3	3	5	TDI
TDIS	4	4	15	GND
TVD	5	5	1	IO VREF
KEY	6	6		
TDO	7	7	4	TDO
GND	8	8	*	GND
RTCK	9	9	7	RTCK
GND	10	10	*	GND
TCLK	11	11	3	TCK
GND	12	12	*	GND
EMU0	13	13	19	EMU0
EMU1	14	14	21	EMU1
nSRST		15	6	nRESET
GND		16	*	GND
EMU2		17	13	EMU2
EMU3		18	17	EMU3
EMU4		19	23	EMU4
GND		20	*	GND

TDIS TDIS is a connection to ground to check cable connection to target  
 KEY KEY is not connected and used for proper emulator cable connection/alignment  
 \* GND is common on all MIPI 60 ground pins

**Table 4 - Connector Signal to Pin Correlations**

## QUICK START GUIDE

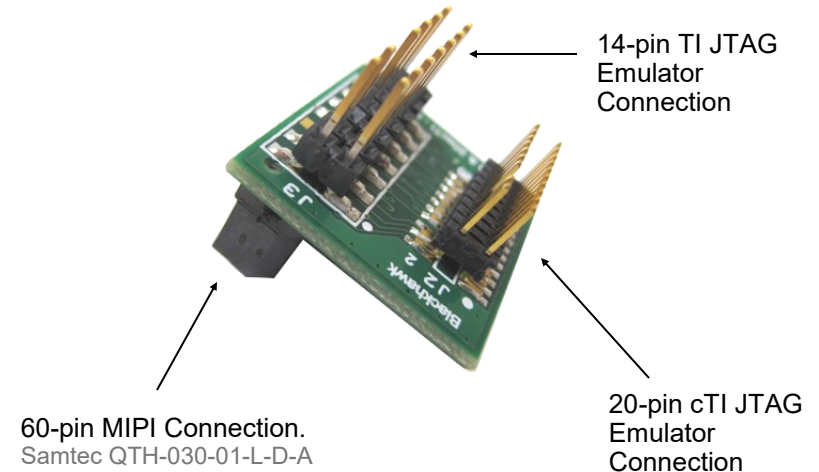
## Blackhawk™ JTAG Pin Converters (60t\_MIPI)

### Installation Requirements

- Emulator with TI 14-pin or cTI 20-pin JTAG connection.
- TI development Board with a 60-pin System Trace header

### 14e\_TI+20e\_cTI-60t\_MIPI Pin Converter

This document covers the pin and signal definitions for each connection on the pin converter. There are two emulator connections and one target connection.



### Important Environmental Considerations

Caution is necessary to minimize ESD (Electro-static Discharge) which can damage electronic components. Use in a controlled environment where ESD materials and practices are employed is highly recommended.

# 1 20e\_cTI Pin Definitions

Pin	Name	Pin	Name
1	TMS	2	nTRST†
3	TDI	4	TDIS
5	TVD	6	KEY
7	TDO	8	GND
9	RTCK	10	GND
11	TCK	12	GND
13	EMU0	14	EMU1
15	nSRST†	16	GND
17	EMU2	18	EMU3
19	EMU4	20	GND

Table 1 - 20-pin Compact TI Signals

† Signals are active low

# 60t\_MIPi Pin Definitions 3

Pin	Name	Pin	Name	Pin	Name	Pin	Name
1	IO V <sub>ref</sub>	16	GND	31	EMU8	46	NC
2	TMS	17	EMU3	32	NC	47	EMU16
3	TCK	18	NC	33	EMU9	48	NC
4	TDO	19	EMU0	34	NC	49	EMU17
5	TDI	20	NC	35	EMU10	50	NC
6	nRESET	21	EMU1	36	NC	51	EMU18
7	RTCK	22	NC	37	EMU11	52	NC
8	nTRST	23	EMU4	38	NC	53	EMU19
9	nTRST	24	NC	39	EMU12	54	NC
10	NC	25	EMU5	40	NC	55	NC
11	NC	26	NC	41	EMU13	56	NC
12	EMU IO V <sub>ref</sub>	27	EMU6	42	NC	57	GND
13	EMU2	28	NC	43	EMU14	58	GND
14	NC	29	EMU7	44	NC	59	NC
15	GND	30	NC	45	EMU15	60	NC

Table 3 - 60-pin MIPi Signals

# 2 14e\_TI Pin Definitions

Pin	Name	Pin	Name
1	TMS	2	nTRST†
3	TDI	4	GND
5	TVD	6	KEY
7	TDO	8	GND
9	RTCK	10	GND
11	TCLK	12	GND
13	EMU0	14	EMU1

Table 2 - Standard TI 14-pin Signals

† Signals are active low

# Adapter Bottom View 4



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