Interface Connectors

This chapter contains the following sections:

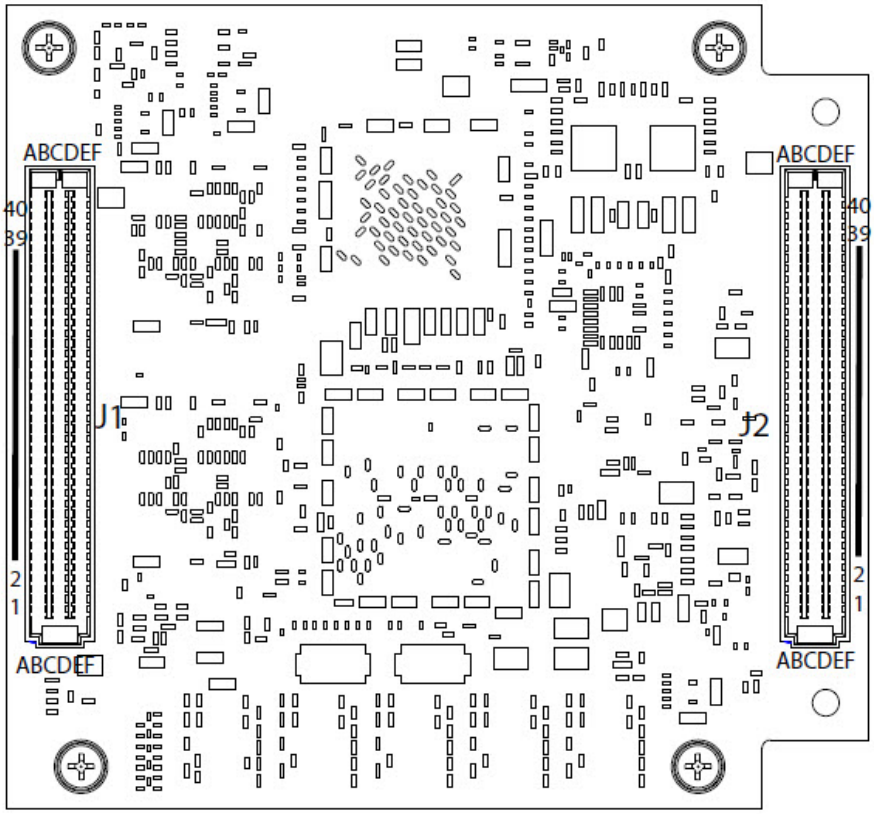
Interface Connectors Overview

The Main Board and the Expansion Board each have two connectors that provide power and interface connections to external devices and to each other. All of the connectors belong to the SEARAY® Connector Series from SAMTEC. Depending on the mating connector selected by the integrator, the connector series supports a stacking height from 7 mm to 18mm (not all increments are supported).

Main Board Interface Connectors (I/O and Network Interface)

The locations and designations of the two Main Board interface connectors are shown in the following figure.

The Main Board I/O connectors (J1 and J2) are a SAMTEC SEAF-40-05.0-S-06-2-A-K 240-pin connector. See the following figure for the pin numbering convention.



ESS-3300 Network Interface Connector (J1)

Pin #	Row A	Row B	Row C	Row D	Row E	Row F
1	NC	NC	NC	NC	NC	NC
2	NC	NC	NC	NC	NC	NC
3	NC	NC	GND	NC	GND	NC
4	NC	NC	Gi1/9 MDI3 P	GND	Gi1/9 MDI1 P	GND
5	GND	GND	Gi1/9 MDI3 N	Gi1/9 MDI2_P	Gi1/9 MDI1 N	Gi1/9 MDI0 P
6	SFP Gi1/4 SCL	SFP Gi1/3 SCL	GND	Gi1/9 MDI2_N	GND	Gi1/9 MDI0 N
7	GND	GND	Gi1/10 MDI3 P	GND	Gi1/10 MDI1 P	GND
8	SFP Gi1/4 SDA	SFP Gi1/3 SDA	Gi1/10 MDI3 N	Gi1/10 MDI2_P	Gi1/10 MDI1 N	Gi1/10 MDI0 P
9	GND	GND	GND	Gi1/10 MDI2_N	GND	Gi1/10 MDI0 N

Pin #	Row A	Row B	Row C	Row D	Row E	Row F
10	SFP Gi1/4 RXLOS	SFP Gi1/3 RXLOS	Gi1/7 MDI3 P	GND	Gi1/7 MDI1 P	GND
11	SFP Gi1/4 TXFLT	SFP Gi1/3 TXFLT	Gi1/7 MDI3 N	Gi1/7 MDI2_P	Gi1/7 MDI1 N	Gi1/7 MDI0 P
12	SFP Gi1/4 PRES_L	SFP Gi1/3 PRES_L	GND	Gi1/7 MDI2_N	GND	Gi1/7 MDI0 N
13	SFP Gi1/4 TXDIS	SFP Gi1/3 TXDIS	Gi1/8 MDI3 P	GND	Gi1/8 MDI1 P	GND
14	SFP Gi1/4 PWR EN	SFP Gi1/3 PWR EN	Gi1/8 MDI3 N	Gi1/8 MDI2_P	Gi1/8 MDI1 N	Gi1/8 MDI0 P
15	GND	GND	GND	Gi1/8 MDI2_N	GND	Gi1/8 MDI0 N
16	SFP Gi1/6 SCL	SFP Gi1/5 SCL	SFP Gi1/5 TXD P	GND	SFP Gi1/3 TXD P	GND
17	GND	GND	SFP Gi1/5 TXD N	SFP Gi1/6 TXD P	SFP Gi1/3 TXD N	SFP Gi1/4 TXD P
18	SFP Gi1/6 SDA	SFP Gi1/5 SDA	GND	SFP Gi1/6 TXD N	GND	SFP Gi1/4 TXD N
19	GND	GND	SFP Gi1/5 RXD P	GND	SFP Gi1/3 RXD P	GND
20	SFP Gi1/6 RXLOS	SFP Gi1/5 RXLOS	SFP Gi1/5 RXD N	SFP Gi1/6 RXD P	SFP Gi1/3 RXD N	SFP Gi1/4 RXD
21	SFP Gi1/6 TXFLT	SFP Gi1/5 TXFLT	GND	SFP Gi1/6 RXD N	GND	SFP Gi1/4 RXD N
22	SFP Gi1/6 PRES_L	SFP Gi1/5 PRES_L	Gi1/5 MDI3 P	GND	Gi1/5 MDI1 P	GND
23	SFP Gi1/6 TXDIS	SFP Gi1/5 TXDIS	Gi1/5 MDI3 N	Gi1/5 MDI2 P	Gi1/5 MDI1 N	Gi1/5 MDI0 P
24	SFP Gi1/6 PWR EN	SFP Gi1/5 PWR_EN	GND	Gi1/5 MDI2 N	GND	Gi1/5 MDI0 N
25	GND	GND	Gi1/6 MDI3 P	GND	Gi1/6 MDI1 P	GND
26	SFP Te1/2 SCL	SFP Te1/1 SCL	Gi1/6 MDI3 N	Gi1/6 MDI2 P	Gi1/6 MDI1 N	Gi1/6 MDI0 P
27	GND	GND	GND	Gi1/6 MDI2 N	GND	Gi1/6 MDI0 N
28	SFP Te1/2 SDA	SFP Te1/1 SDA	Gi1/3 MDI3 P	GND	Gi1/3 MDI1 P	GND
29	GND	GND	Gi1/3 MDI3 N	Gi1/3 MDI2 P	Gi1/3 MDI1 N	Gi1/3 MDI0 P
30	SFP Te1/2 RXLOS	SFP Te1/1 RXLOS	GND	Gi1/3 MDI2 N	GND	Gi1/3 MDI0 N
31	SFP Te1/2 TXFLT	SFP Te1/1 TXFLT	Gi1/4 MDI3 P	GND	Gi1/4 MDI1 P	GND
32	SFP Te1/2 PRES_L	SFP Te1/1 PRES_L	Gi1/4 MDI3 N	Gi1/4 MDI2 P	Gi1/4 MDI1 N	Gi1/4 MDI0 P
33	SFP Te1/2 TXDIS	SFP Te1/1 TXDIS	GND	Gi1/4 MDI2 N	GND	Gi1/4 MDI0 N
34	SFP Te1/2 PWR EN	SFP Te1/1 PWR EN	GND	GND	GND	GND
35	NC	GND	GND	GND	GND	GND
36	NC	GND	SFP Te1/1 RXD P	GND	SFP Te1/2 RXD P	GND

Pin #	Row A	Row B	Row C	Row D	Row E	Row F
37	NC	GND	SFP Te1/1 RXD N	GND	SFP Te1/2 RXD N	GND
38	NC	GND	GND	SFP Te1/1 TXD P	GND	SFP Te1/2 TXD P
39	NC	GND	GND	SFP Te1/1 TXD N	GND	SFP Te1/2 TXD N
40	NC	GND	GND	GND	GND	GND

ESS-3300 Main Board I/O Connector (J2)

PIN #	Row A	Row B	Row C	Row D	Row E	Row F
1	P5V	P5V	P5V	P5V	P5V	P5V
2	P5V	P5V	P5V	P5V	P5V	P5V
3	GND	GND	GND	GND	GND	GND
4	GND	GND	GND	GND	GND	GND
5	P3_3V	P3_3V	P3_3V	P3_3V	P3_3V	P3_3V_RTC
6	GND	GND	GND	P5V_USB	GND	GND
7	SDIO DATA[0]	GND	SDIO DIR CMD	GND	USB_CONSOLE_P	PCIE_BRIDGE_RST_L
8	GND	SDIO DATA[3]	GND	GND	USB_CONSOLE_N	GND
9	SDIO DATA[1]	GND	SDIO DIR DATA[1:3]	USB_HOST_P	GND	RS232 CONSOLE RX
10	GND	SDIO CMD	GND	USB_HOST_N	GND	RS232 CONSOLE TX
11	SDIO DATA[2]	GND	SDIO DIR DATA[0]	GND	RSVD	GND
12	SDIO SEL	SDIO CLK	SDIO CD_L	GND	RSVD	GND
13	SDIO WP_L	SDIO BUS POWER	P1_8V	RSVD	RSVD	EXPANSION[1] MDIO
14	GND	GND	GND	RSVD	RSVD	EXPANSION[1] MDC
15	QSGMII_MAIN_EXP_LANE1_P	GND	CLK_MAIN_EXP_P	GND	EXPANSION[2] MDIO	GND

PIN #	Row A	Row B	Row C	Row D	Row E	Row F
16	QSGMII_MAIN_EXP_LANE1_N	GND	CLK_MAIN_EXP_N	GND	EXPANSION[2] MDC	GND
17	GND	QSGMII_EXP_MAIN_LANE1_P	GND	HOST I2C SDA	GND	EXPANSION[2] I2C
18	GND	QSGMII_EXP_MAIN_LANE1_N	GND	HOST I2C SCL	GND	EXPANSION[2] I2C
19	QSGMII_MAIN_EXP_LANE2_P	GND	PTP_SYNC	GND	EXPANSION[1] I2C SDA	GND
20	QSGMII_MAIN_EXP_LANE2_N	GND	CISCO DEBUG[0]	GND	EXPANSION[1] I2C SCL	GND
21	GND	QSGMII_EXP_MAIN_LANE2_P	GND	LED SCLK	GND	LED MOSI
22	GND	QSGMII_EXP_MAIN_LANE2_N	GND	LED MISO	GND	LED MAIN CS_L
23	QSGMII_MAIN_EXP_LANE3_P	GND	POE_SPI_SCLK	GND	LED EXPANSION CS_L	LED RST_L
24	QSGMII_MAIN_EXP_LANE3_N	GND	POE_SPI_MISO	GND	RSVD	DC A GOOD
25	GND	QSGMII_EXP_MAIN_LANE3_P	GND	DYING_GASP_L	PUSHBUTTON_L	DC B GOOD
26	GND	QSGMII_EXP_MAIN_LANE3_N	GND	ALARM_IN1_L	ALARM_IN2_L	ALARM OUT L
27	QSGMII_MAIN_EXP_LANE4_P	GND	POE_SPI_MOSI	POE[1] RST_L	POE[1] PRESENT	MODULE_PRESENT_L
28	QSGMII_MAIN_EXP_LANE4_N	GND	POE_SPI_CS_L	EXPANSION[1] POWER ENABLE	EXPANSION[1] RST_L	EXPANSION[2] IRQA
29	GND	QSGMII_EXP_MAIN_LANE4_P	GND	EXPANSION[1] IRQB	EXPANSION[2] POWER ENABLE	EXPANSION[2] RST_L
30	GND	QSGMII_EXP_MAIN_LANE4_N	GND	GND	EXPANSION[1] IRQA	EXPANSION[2] IRQB
31	PCIE_ROOT_BRIDGE_P	GND	RSVD	RSVD	RSVD	POE_LOADSHED_L
32	PCIE_ROOT_BRIDGE_N	GND	RSVD	RSVD	RSVD	GND
33	GND	PCIE_BRIDGE_EP_P	RSVD	RSVD	GND	RSVD
34	GND	PCIE_BRIDGE_EP_N	RSVD	GND	RSVD	GND
35	PCIE_BRIDGE_ROOT_P	GND	HOST_IRQ_L	RSVD	GND	RSVD

PIN #	Row A	Row B	Row C	Row D	Row E	Row F
36	PCIE_BRIDGE_ROOT_N	GND	RSVD	GND	RSVD	GND
37	GND	PCIE_EP_BRIDGE_P	RSVD	RSVD	RSVD	GND
38	GND	PCIE_EP_BRIDGE_N	GND	RSVD	RSVD	GND
39	1PPS	GND	RSVD	RSVD	RSVD	GND
40	1PPS_ENABLE	GND	GND	RSVD	RSVD	GND

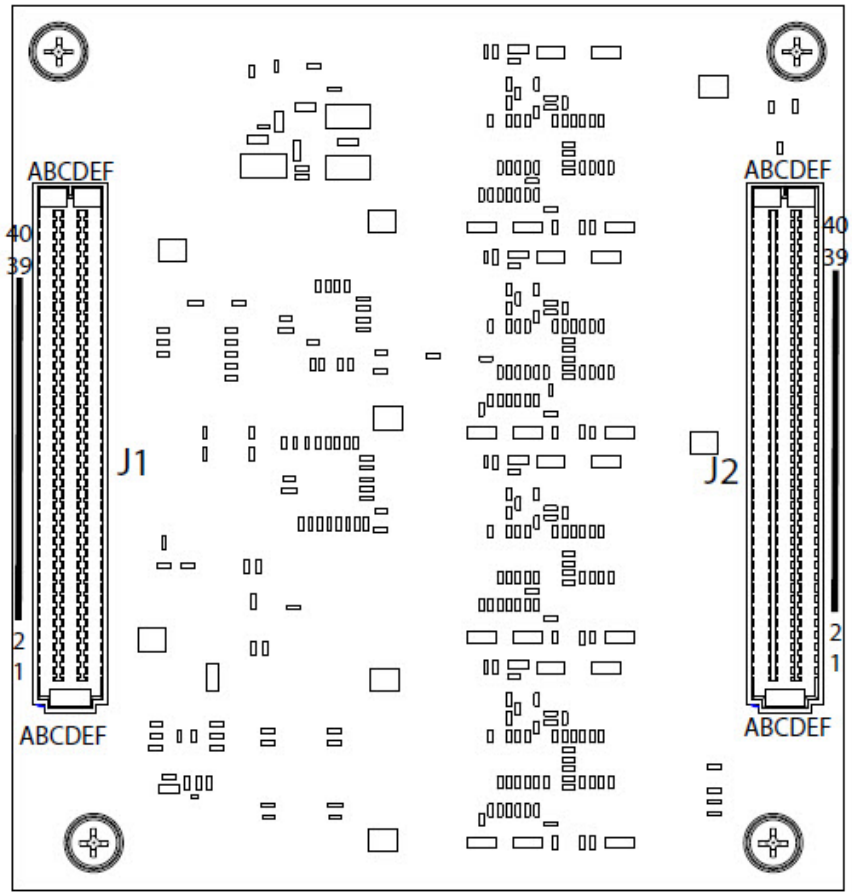
Expansion Board Interface Connectors (I/O and Network Interface)

This section shows the locations and designations of the two Expansion Board interface connectors.

ESS-3300 Expansion Board I/O Connector (J1)

The Expansion Board I/O connectors (J1 and J2) are a SAMTEC SEAF-40-05.0-S-06-2-A-K 240-pin connector. The following tables provide a pinout listing for the I/O connectors, as well as the pin numbering convention.

Figure 1: Expansion Board I/O Connector



PIN #	Row A	Row B	Row C	Row D	Row E	Row F
1	P5V	P5V	P5V	P5V	P5V	P5V
2	P5V	P5V	P5V	P5V	P5V	P5V
3	GND	GND	GND	GND	GND	GND
4	GND	GND	GND	GND	GND	GND
5	P3_3V	P3_3V	P3_3V	P3_3V	P3_3V	P3_3V
6	GND	GND	GND	GND	GND	GND
7	PTP_SYNC	GND	RSVD	GND	SFP Gi2/3 SCL	SFP Gi2/2 SCL

PIN #	Row A	Row B	Row C	Row D	Row E	Row F
8	GND	NC	GND	GND	GND	GND
9	NC]	GND	NC	EXPANSION[2] MDIO	SFP Gi2/3 SDA	SFP Gi2/2 SDA
10	GND	NC	GND	EXPANSION[2] MDC	GND	GND
11	CLK_MAIN_EXP_P	GND	NC	GND	SFP Gi2/3 RXLOS	SFP Gi2/2 RXLOS
12	CLK_MAIN_EXP_N	NC	NC	GND	SFP Gi2/3 TXFLT	SFP Gi2/2 TXFLT
13	GND	NC	NC	RSVD	SFP Gi2/3 PRES_	SFP Gi2/2 PRES_L
14	GND	GND	GND	RSVD	SFP Gi2/3 TXDIS	SFP Gi2/2 TXDIS
15	QSGMII_MAIN_EXP_LANE1_P	GND	NC	GND	SFP Gi2/3 PWR EN	SFP Gi2/2 PWR EN
16	QSGMII_MAIN_EXP_LANE1_N	GND	NC	GND	GND	GND
17	GND	QSGMII_EXP_MAIN_LANE1_P	GND	EXPANSION[1]I2C SDA	SFP Gi2/4 SCL	RSVD
18	GND	QSGMII_EXP_MAIN_LANE1_N	GND	EXPANSION[1]I2C SCL	GND	GND
19	QSGMII_MAIN_EXP_LANE2_P	GND	NC	GND	SFP Gi2/4 SDA	RSVD
20	QSGMII_MAIN_EXP_LANE2_N	GND	NC	GND	GND	GND
21	GND	QSGMII_EXP_MAIN_LANE2_P	GND	EXPANSION[2]I2C SDA	SFP Gi2/4 RXLOS	RSVD
22	GND	QSGMII_EXP_MAIN_LANE2_N	GND	EXPANSION[2]I2C SCL	SFP Gi2/4 TXFLT	GND
23	QSGMII_MAIN_EXP_LANE3_P	GND	NC	GND	SFP Gi2/4 PRES_L	RSVD
24	QSGMII_MAIN_EXP_LANE3_N	GND	NC	GND	SFP Gi2/4 TXDIS	GND
25	GND	QSGMII_EXP_MAIN_LANE3_P	GND	EXPANSION[1]RST_L	SFP Gi2/4 PWR EN	RSVD

PIN #	Row A	Row B	Row C	Row D	Row E	Row F
26	GND	QSGMII_EXP_MAIN_LANE3_N	GND	EXPANSION[2] POWER ENABLE	GND	NC
27	QSGMII_MAIN_EXP_LANE4_P	GND	NC	EXPANSION[1]IRQA	SFP Gi2/1 SCL	NC
28	QSGMII_MAIN_EXP_LANE4_N	GND	NC	EXPANSION[1] POWER ENABLE	GND	NC
29	GND	QSGMII_EXP_MAIN_LANE4_P	GND	EXPANSION[1]IRQB	SFP Gi2/1 SDA	NC
30	GND	QSGMII_EXP_MAIN_LANE4_N	GND	GND	GND	NC
31	RSVD	GND	NC	MODULE_PRESENT_L	SFP Gi2/1 RXLOS	NC
32	RSVD	GND	NC	EXPANSION[2]IRQA	SFP Gi2/1 TXFLT	NC
33	GND	RSVD	GND	EXPANSION[2]RST_L	SFP Gi2/1 PRES_L	NC
34	GND	RSVD	GND	EXPANSION[2]IRQB	SFP Gi2/1 TX DIS	NC
35	RSVD	GND	NC	GND	SFP Gi2/1 PWR EN	NC
36	RSVD	GND	NC	GND	GND	GND
37	GND	RSVD	GND	EXPANSION[1]MDIO	NC	POE[2] PRESENT
38	GND	RSVD	GND	EXPANSION[1]MDC	NC	POE[2] RST_L
39	NC	GND	NC	GND	NC	POE[3] PRESENT
40	NC	GND	NC	GND	NC	POE[3] RST_L

ESS-3300 Expansion Board Network Interface Connector (J2)

PIN #	Row A	Row B	Row C	Row D	Row E	Row F
1	SFP Gi2/3 TXD P	GND	SFP Gi2/1 TXD P	GND	GND	GND
2	SFP Gi2/3 TXD N	SFP Gi2/3 RXD P	SFP Gi2/1 TXD N	SFP Gi2/1 RXD P	GND	GND
3	GND	SFP Gi2/3 RXD N	GND	SFP Gi2/1 RXD N	GND	GND
4	SFP Gi2/4 TXD P	GND	SFP Gi2/2 TXD P	GND	GND	GND
5	SFP Gi2/4 TXD N	SFP Gi2/4 RXD P	SFP Gi2/2 TXD N	SFP Gi2/2 RXD P	GND	GND

PIN #	Row A	Row B	Row C	Row D	Row E	Row F
6	GND	SFP Gi2/4 RXD N	GND	SFP Gi2/2 RXD N	GND	GND
7	Gi2/3 MDI0 P	GND	Gi2/3 MDI2 P	GND	Gi2/1 MDI0 P	GND
8	Gi2/3 MDI0 N	Gi2/3 MDI1 P	Gi2/3 MDI2 N	Gi2/3 MDI3 P	Gi2/1 MDI0 N	Gi2/1 MDI1 P
9	GND	Gi2/3 MDI1 N	GND	Gi2/3 MDI3 N	GND	Gi2/1 MDI1 N
10	Gi2/4 MDI0 P	GND	Gi2/4 MDI2 P	GND	Gi2/1 MDI2 P	GND
11	Gi2/4 MDI0 N	Gi2/4 MDI1 P	Gi2/4 MDI2 N	Gi2/4 MDI3 P	Gi2/1 MDI2 N	Gi2/1 MDI3 P
12	GND	Gi2/4 MDI1 N	GND	Gi2/4 MDI3 N	GND	Gi2/1 MDI3 N
13	Gi2/2 MDI0 P	GND	Gi2/2 MDI2 P	GND	Gi2/8 MDI0 P	GND
14	Gi2/2 MDI0 N	Gi2/2 MDI1 P	Gi2/2 MDI2 N	Gi2/2 MDI3 P	Gi2/8 MDI0 N	Gi2/8 MDI1 P
15	GND	Gi2/2 MDI1 N	GND	Gi2/2 MDI3 N	GND	Gi2/8 MDI1 N
16	Gi2/7 MDI0 P	GND	Gi2/7 MDI2 P	GND	Gi2/8 MDI2 P	GND
17	Gi2/7 MDI0 N	Gi2/7 MDI1 P	Gi2/7 MDI2 N	Gi2/7 MDI3 P	Gi2/8 MDI2 N	Gi2/8 MDI3 P
18	GND	Gi2/7 MDI1 N	GND	Gi2/7 MDI3 N	GND	Gi2/8 MDi3 N
19	Gi2/5 MDI0 P	GND	Gi2/5 MDI2 P	GND	Gi2/11 MDI0 P	GND
20	Gi2/5 MDI0 N	Gi2/5 MDI1 P	Gi2/5 MDI2 N	Gi2/5 MDI3 P	Gi2/11 MDI0 N	Gi2/11 MDI1 P
21	GND	Gi2/5 MDI1 N	GND	Gi2/5 MDI3 N	GND	Gi2/11 MDI1 N
22	Gi2/6 MDI0 P	GND	Gi2/6 MDI2 P	GND	Gi2/11 MDI2 P	GND
23	Gi2/6 MDI0 N	Gi2/6 MDI1 P	Gi2/6 MDi2 N	Gi2/6 MDI3 P	Gi2/11 MDI2 N	Gi2/11 MDI3 P
24	GND	Gi2/6 MDI1 N	GND	Gi2/6 MDI3 N	GND	Gi2/11 MDI3 N
25	Gi2/12 MDI0 P	GND	Gi2/12 MDI2 P	GND	Gi2/10 MDI0 P	GND
26	Gi2/12 MDI0 N	Gi2/12 MDI1 P	Gi2/12 MDI2 N	Gi2/12 MDI3 P	Gi2/10 MDI0 N	Gi2/10 MDI1 P
27	GND	Gi2/12 MDI1 N	GND	Gi2/12 MDI3 N	GND	Gi2/10 MDI1 N
28	Gi2/9 MDI0 P	GND	Gi2/9 MDI2 P	GND	Gi2/10 MDI2 P	GND

PIN #	Row A	Row B	Row C	Row D	Row E	Row F
29	Gi2/9 MDI0 N	Gi2/9 MDI1 P	Gi2/9 MDI2 N	Gi2/9 MDI3 P	Gi2/10 MDI2 N	Gi2/10 MDI3 P
30	GND	Gi2/9 MDI1 N	GND	Gi2/9 MDI3 N	GND	Gi2/10 MDI3 N
31	Gi2/15 MDI0 P	GND	Gi2/15 MDI2 P	GND	Gi2/13 MDI0 P	GND
32	Gi2/15 MDI0 N	Gi2/15 MDI1 P	Gi2/15 MDI2 N	Gi2/15 MDI3 P	Gi2/13 MDI0 N	Gi2/13 MDI1 P
33	GND	Gi2/15 MDI1 N	GND	Gi2/15 MDI3 N	GND	Gi2/13 MDI1 N
34	Gi2/16 MDI0 P	GND	Gi2/16 MDI2 P	GND	Gi2/13 MDI2 P	GND
35	Gi2/16 MDI0 N	Gi2/16 MDI1 P	Gi2/16 MDI2 N	Gi2/16 MDI3 P	Gi2/13 MD2 N	Gi2/13 MDI3 P
36	GND	Gi2/16 MDI1 N	GND	Gi2/16 MDI3 N	GND	Gi2/13 MDI3 N
37	Gi2/14 MDI0 P	GND	Gi2/14 MDI2 P	GND	GND	GND
38	Gi2/14 MDI0 N	Gi2/14 MDI1 P	Gi2/14 MDI2 N	Gi2/14 MDI3 P	GND	NC
39	GND	Gi2/14 MDI1 N	GND	Gi2/14 MDI3 N	GND	NC
40	NC	GND	NC	GND	NC	NC

Board to Board Connectors

Both the Main Board and the Expansion Board use the SEARAY® Connector Series from SAMTEC. Depending on the mating connector selected by the integrator, a stacking height from 7 mm to 18mm (not all increments are supported). Table 8 lists the board connectors and the mating connector options that are available to achieve specific stacking heights below (The Main and Expansion Boards use the -05.0 SEAF Lead Style shown in the following table.

Note Contact your local Samtec sales representatives for specific Samtec part numbers.

SEAM Lead Style	-05.0 SEAF Lead Style
-02.0	7mm
-03.0	8mm
-03.5	8.5mm

SEAM Lead Style	-05.0 SEAF Lead Style
-05.5	NA
-06.5	11.5mm
-07.0	12mm
-09.0	14mm
-11.0	16mm
-13.0 (not tooled)	18mm