GE
Intelligent Platforms

Installation Guide

ACC-0627*

VME Rear Transition Module for the XVB601

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1 • Handling and Installation

1.1 Introduction

The ACC-0627* is a Rear Transition Module (RTM), designed to transition the XVB601* I/O signals from the VME P2 and optional P0 to standard I/O connectors.

The panel I/O access of the ACC-0627 provides:

- COM2 Serial Port supports both RS232 and RS422 via RJ45
- Four standard USB 2.0 connectors
- Digital Visual Interface-Digital (DVI-D) video support
- Two SATA Channels via the P2 connector, and two SATA channels via the optional P0 connector

The onboard I/O access provides:

- Two Internal SATA ports (user selectable with external eSATA ports 1 and 2)

See **Figure 1-3** ***ACC-0627 Mechanical Layout*** on page 10, **Figure 1-4** ***ACC-0627 Mechanical Layout without P0 Option*** on page 11, **Figure 1-5** ***ACC-0627 RTM Panel View*** on page 12 and **Figure 1-6** ***ACC-0627 RTM Panel View without P0 Option*** on page 13 for illustrations of the board and its connector layout.

The VME P2 Connector carries one serial port (Digital TTL signals), four USB ports, One DVI-D port, and two SATA ports. The optional P0 connector carries two SATA channels and GPIO signals. All signals are routed from the single board computer (SBC) (installed in the front of the chassis) through the backplane to the ACC-0627 P2 or optional P0 connector. **Figure 1-7** on page 14 is an illustration of the ACC-0627 installed in the VME rear I/O.

Figure 1-1 ACC-0627 RTM Block Diagram

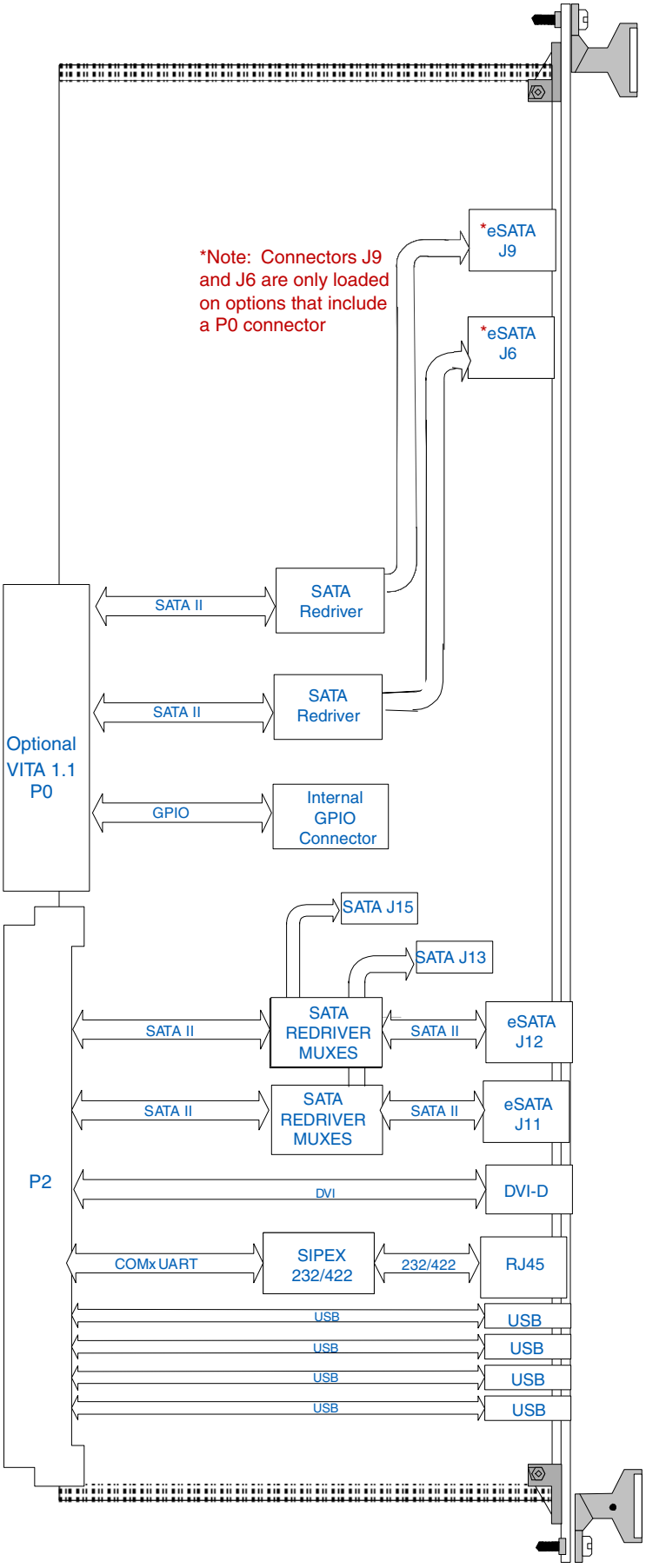
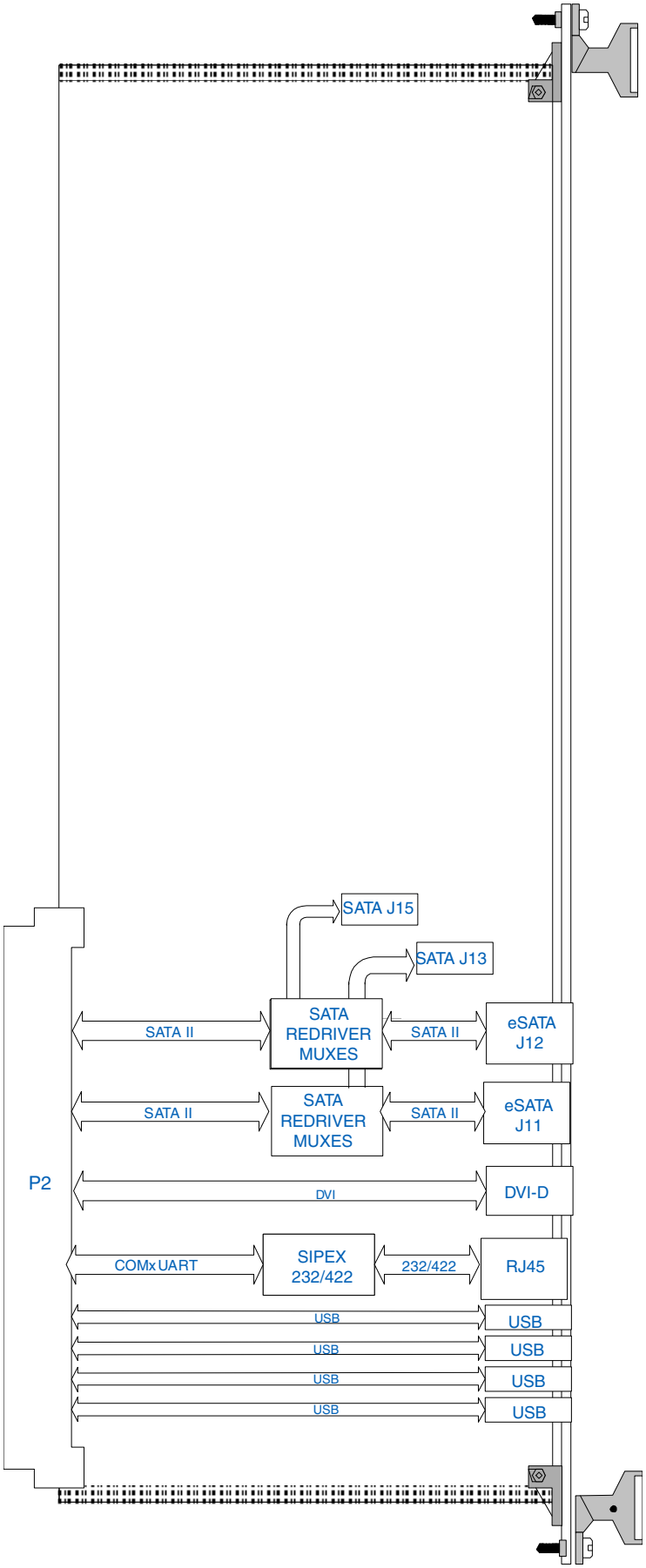


Figure 1-2 ACC-0627 RTM Block Diagram without P0 Option



1.2 Unpacking Procedures

Any precautions found in the shipping container should be observed. All items should be carefully unpacked and thoroughly inspected for damage that might have occurred during shipment. The board(s) should be checked for broken components, damaged printed circuit board(s), heat damage and other visible contamination. All claims arising from shipping damage should be filed with the carrier and a complete report sent to GE Intelligent Platforms Customer Care.

1.3 Handling Precautions

Electronic assemblies use devices that are sensitive to static discharge. Observe anti-static procedures when handling these boards. All products should be in an anti-static plastic bag or conductive foam for storage or shipment. Work at an approved anti-static workstation when unpacking boards.

1.4 Mechanical Layout

There are twelve connectors, three headers and two switches on the RTM. P2 and the optional P0 are the VME backplane connectors. See **Figure 1-3** ***ACC-0627 Mechanical Layout*** on page 10 and **Figure 1-4** ***ACC-0627 Mechanical Layout without P0 Option*** on page 11.

- Headers E3 and E5 set the COM port mode (RS232 or RS422)
- Header E4 is the internal GPIO Connector
- Switch S2 sets the termination for RS422 COM port mode
- Switch S3 selects between the onboard Internal SATA or eSATA for SATA Ports 1 and 2
- J1 is the panel connector for DVI-D
- J2, J3, J7 and J8 are the panel connectors for the USB ports
- J6, J9, J11, and J12 are eSATA ports
- J13 and J15 are the onboard SATA connectors
- J16 is the panel connector for the serial port COM2
- J4, J5, J10 and J14 are Reserved

Figure 1-3 ACC-0627 Mechanical Layout

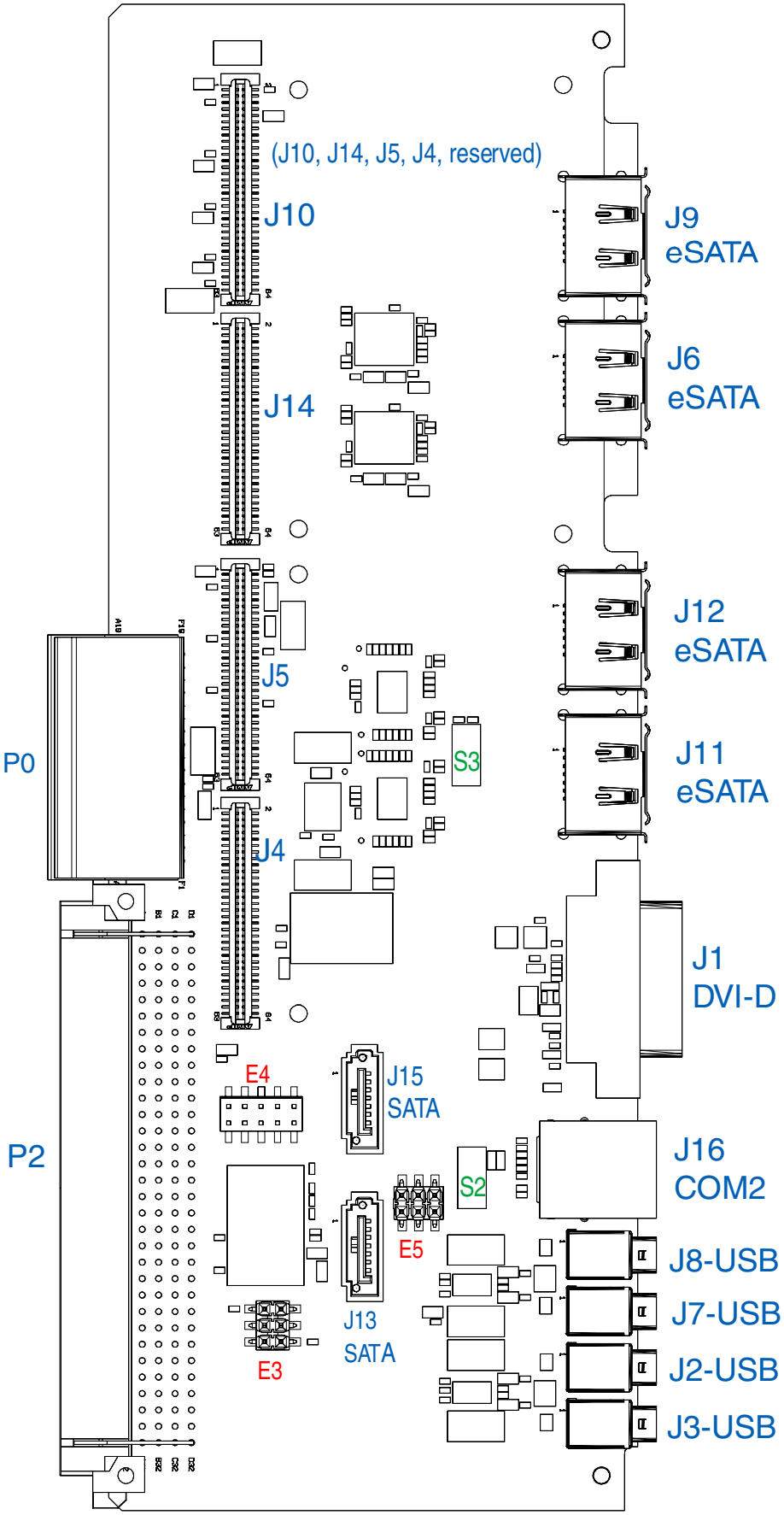


Figure 1-4 ACC-0627 Mechanical Layout without P0 Option

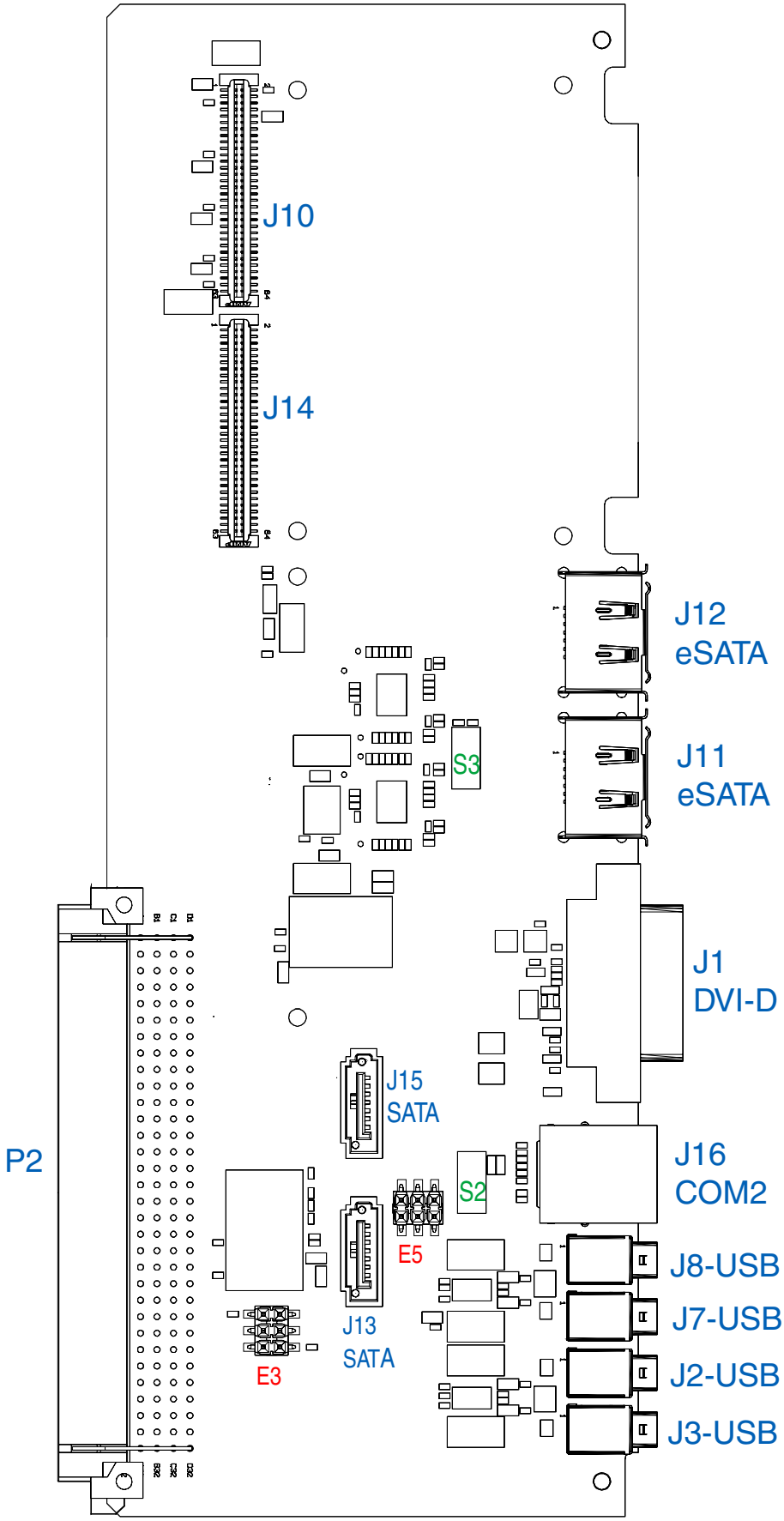


Figure 1-5 ACC-0627 RTM Panel View

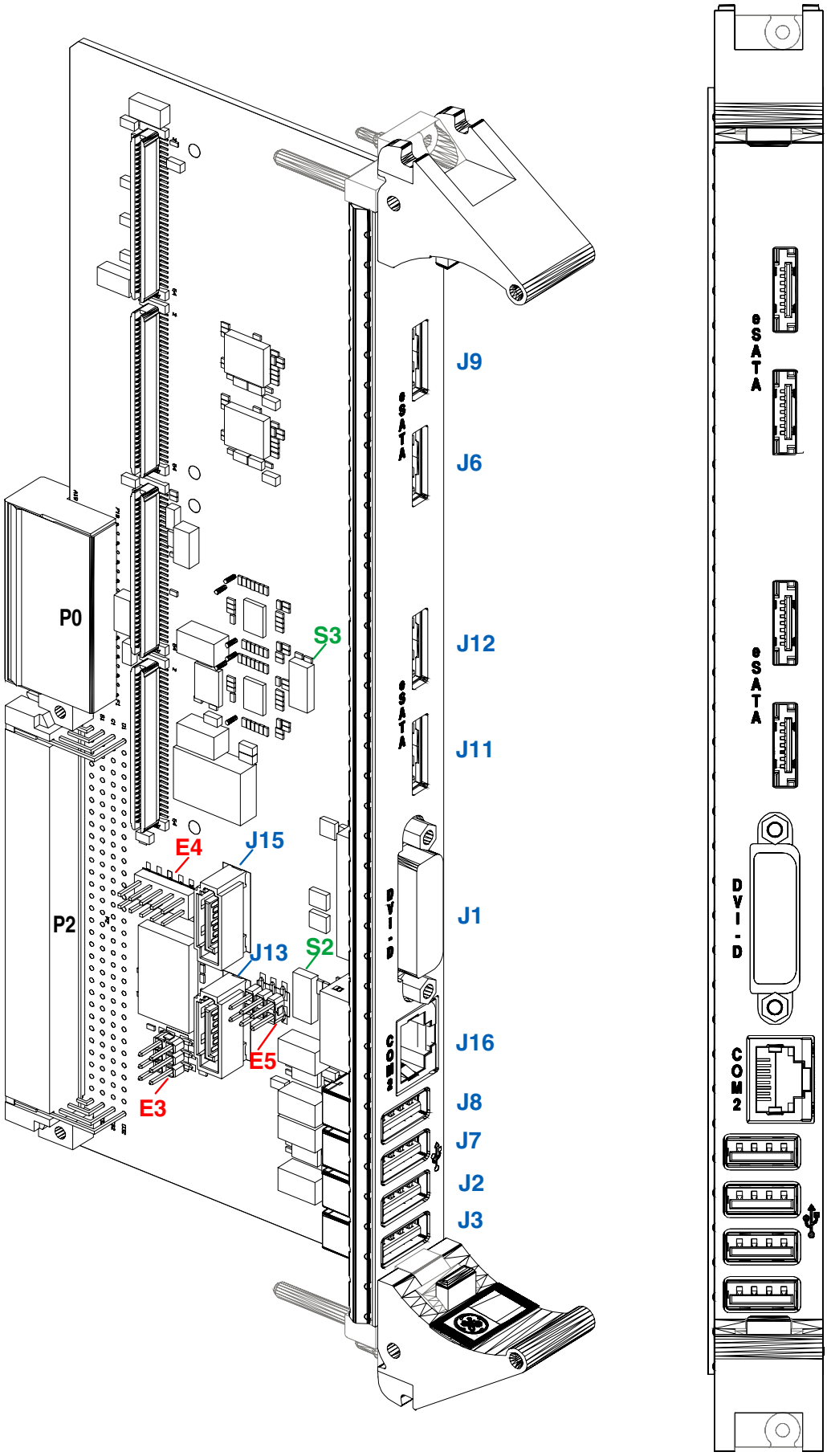
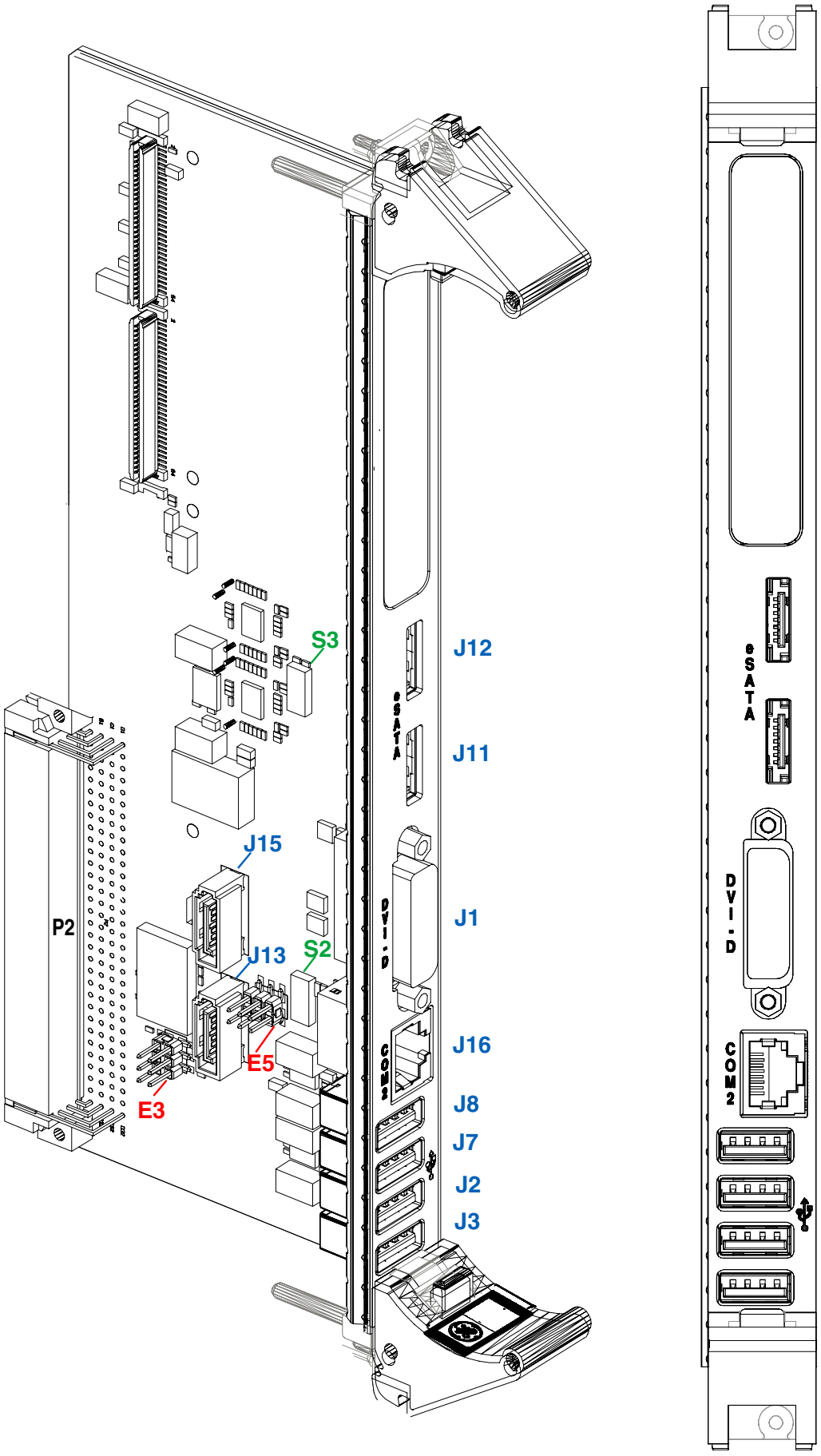


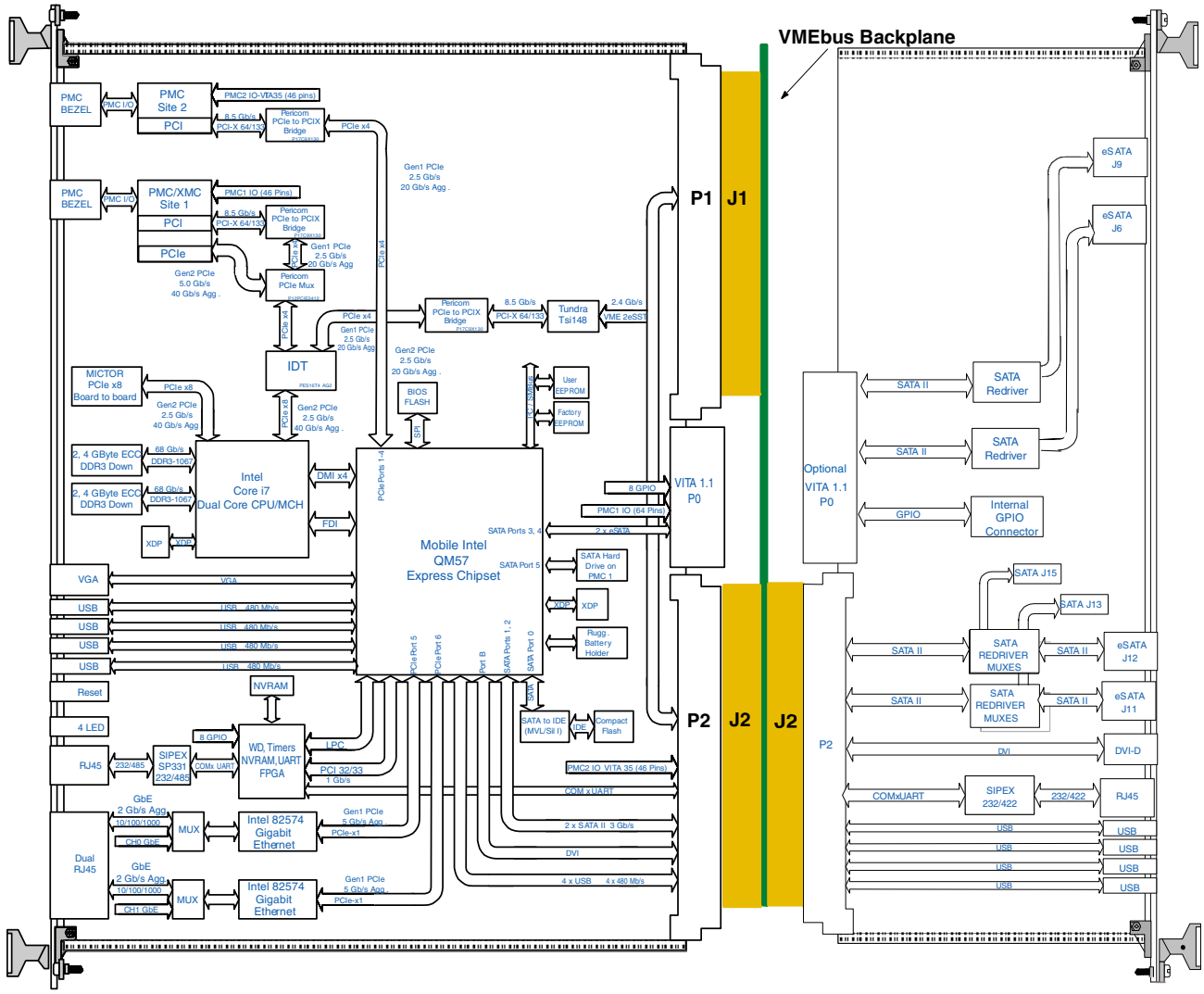
Figure 1-6 ACC-0627 RTM Panel View without P0 Option



1.5 Installation of the ACC-0627 with the XVB601 SBC

The ACC-0627 RTM installs into the rear of the VME chassis using the P2 connector. A sample installation of the ACC-0627 and the XVB601 is shown in **Figure 1-7**.

Figure 1-7 Installation of ACC-0627 RTM with XVB601



NOTE

The ACC-0627 RTM is designed to be installed in a chassis that supports the VME five row backplane connectors.

NOTE

The ACC-0627 uses a five row VME connector. We do not recommend using the ACC-0627 with a three row backplane. If it is used with a three row backplane, use extreme care to ensure the middle three rows of the connector are mated with the three row backplane.

1.6 Connectors, Headers and Switches

1.6.1 VME Connector (Optional P0)

The optional P0 connector is a 95-pin, five row connector that carries two SATA channels and GPIO signals.

Figure 1-8 VME Connector (Optional P0)

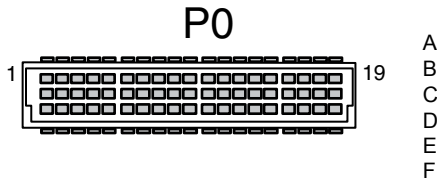


Table 1-1 Optional P0 (J0) Connector Signal Assignments

Pos	P0 Row A	P0 Row B	P0 Row C	P0 Row D	P0 Row E	P0 Row F
1	N/C	P0_CONN[64]	P0_CONN[63]	P0_CONN[62]	P0_CONN[61]	GND
2	P0_CONN[60]	P0_CONN[59]	P0_CONN[58]	P0_CONN[57]	P0_CONN[56]	GND
3	P0_CONN[55]	P0_CONN[54]	P0_CONN[53]	P0_CONN[52]	P0_CONN[51]	GND
4	P0_CONN[50]	P0_CONN[49]	P0_CONN[48]	P0_CONN[47]	P0_CONN[46]	GND
5	P0_CONN[45]	P0_CONN[44]	P0_CONN[43]	P0_CONN[42]	P0_CONN[41]	GND
6	P0_CONN[40]	P0_CONN[39]	P0_CONN[38]	P0_CONN[37]	P0_CONN[36]	GND
7	P0_CONN[35]	P0_CONN[34]	P0_CONN[33]	P0_CONN[32]	P0_CONN[31]	GND
8	P0_CONN[30]	P0_CONN[29]	P0_CONN[28]	P0_CONN[27]	P0_CONN[26]	GND
9	N/C	N/C	N/C	N/C	N/C	GND
10	SATA4_TXP	SATA4_TXN	GND	SATA4_RXP	SATA4_RXN	GND
11	SATA3_TXP	SATA3_TXN	GND	SATA3_RXP	SATA3_RXN	GND
12	P0_CONN[25]	P0_CONN[24]	P0_CONN[23]	P0_CONN[22]	P0_CONN[21]	GND
13	P0_CONN[20]	P0_CONN[19]	P0_CONN[18]	P0_CONN[17]	P0_CONN[16]	GND
14	P0_CONN[15]	P0_CONN[14]	P0_CONN[13]	P0_CONN[12]	P0_CONN[11]	GND
15	P0_CONN[10]	P0_CONN[9]	P0_CONN[8]	P0_CONN[7]	P0_CONN[6]	GND
16	P0_CONN[5]	P0_CONN[4]	P0_CONN[3]	P0_CONN[2]	P0_CONN[1]	GND
17	N/C	N/C	N/C	N/C	N/C	GND
18	N/C	N/C	FPGA_GPIO7	FPGA_GPIO6	FPGA_GPIO5	GND
19	FPGA_GPIO4	FPGA_GPIO3	FPGA_GPIO2	FPGA_GPIO1	FPGA_GPIO0	GND

1.6.2 VME Connector (P2)

The P2 connector is a standard VME64, 160 pin, five-row connector. The connector is used to route all associated signals from the backplane of the SBC. **Figure 1-9** below illustrates the P2 connector; **Table 1-2** below is the connector pinout.

Figure 1-9 VME64 Connector (P2)

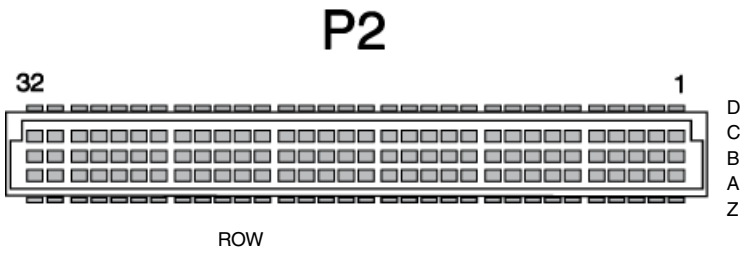


Table 1-2 VME64 Connector Pinout (P2)

Pin	Row A	Row B	Row C	Row D	Row Z
1	GND	VCC_5V	SP1_TX	CONN[1]	CONN[2]
2	USB_P5N	GND	SP1_RTS#	CONN[3]	GND
3	USB_P5P	N/C	SP1_DTR#	CONN[4]	CONN[5]
4	USB_OC5#	N/C	SP1_RX	CONN[6]	GND
5	GND	N/C	SP1_DCD#	CONN[7]	CONN[8]
6	USB_P4N	N/C	SP1_CTS#	CONN[9]	GND
7	USB_P4P	N/C	SP1_DSR#	CONN[10]	CONN[11]
8	USB_OC4#	N/C	N/C	CONN[12]	GND
9	GND	N/C	SP1_2_232_422	CONN[13]	CONN[14]
10	USB_P3P	N/C	VCC_5V	CONN[15]	GND
11	USB_P3N	N/C	VCC_N12V	CONN[16]	CONN[17]
12	USB_OC3#	GND	GND	CONN[18]	GND
13	GND	VCC_5V	SATA1_RXN	CONN[19]	CONN[20]
14	USB_P2N	N/C	SATA1_RXP	CONN[21]	GND
15	USB_P2P	N/C	GND	CONN[22]	CONN[23]
16	USB_OC2#	N/C	SATA1_TXN	CONN[24]	GND
17	GND	N/C	SATA1_TXP	CONN[25]	CONN[26]
18	VCC_5V	N/C	GND	CONN[27]	GND
19	VCC_12V	N/C	GND	CONN[28]	CONN[29]
20	GND	N/C	SATA2_RXN	CONN[30]	GND
21	DVI_TXCN	N/C	SATA2_RXP	CONN[31]	CONN[32]
22	DVI_TXCP	GND	GND	CONN[33]	GND
23	GND	N/C	SATA2_TXN	CONN[34]	CONN[35]
24	DVI_TX0N	N/C	SATA2_RXP	CONN[36]	GND
25	DVI_TX0P	N/C	GND	CONN[37]	CONN[38]
26	GND	N/C	N/C	CONN[39]	GND
27	DVI_TX1N	N/C	GND	CONN[40]	CONN[41]
28	DVI_TX1P	N/C	GND	CONN[42]	GND
29	GND	N/C	DVI_DDCCLK	CONN[43]	CONN[44]
30	DVI_TX2N	N/C	DVI_DDCDATA	CONN[45]	GND
31	DVI_TX2P	GND	DVI_HOT_PLUG	GND	CONN[46]
32	GND	VCC_5V	N/C	VCC_5V	GND

1.6.3 COM2 Connector (J16)

The ACC-0627 provides a 16550 compatible serial port. The serial port has an independent 16-bit FIFO supporting baud rates up to 115 Kbaud. The serial port is available via a standard RJ45 connector and is hardware-configurable for either RS232 or RS422.

The illustration for the RJ45 connector used for the COM2 (serial port) is shown in **Figure 1-10**. **Table 1-3** shows the pinout for COM2 in both RS232 and RS422 modes.

Figure 1-10 COM2 Connector RJ45

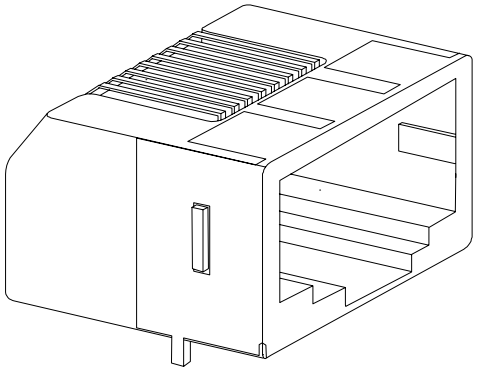


Table 1-3 COM2 Connector Pinout (J16) ACC-0627

Pin	RS232 Signal	RS422 Signal
1	DCD	RXD-
2	RTS	Reserved
3	GND	TXD-
4	TXD	TXD
5	RXD	RXD
6	DSR	GND
7	CTS	Reserved
8	DTR	Reserved

NOTE: See the appropriate table of jumper and switch settings for configuring.

1.6.4 COM2 Mode Headers (E3 and E5)

Jumpers E3 and E5 are user configurable for the COM2 modes. **Table 1-4** shows the settings for RS232 mode and RS422 mode. The default settings are in bold.

NOTE

E1, E2, and E6 are not configurable by the user.

Figure 1-11 COM2 Mode Headers (E3 and E5)

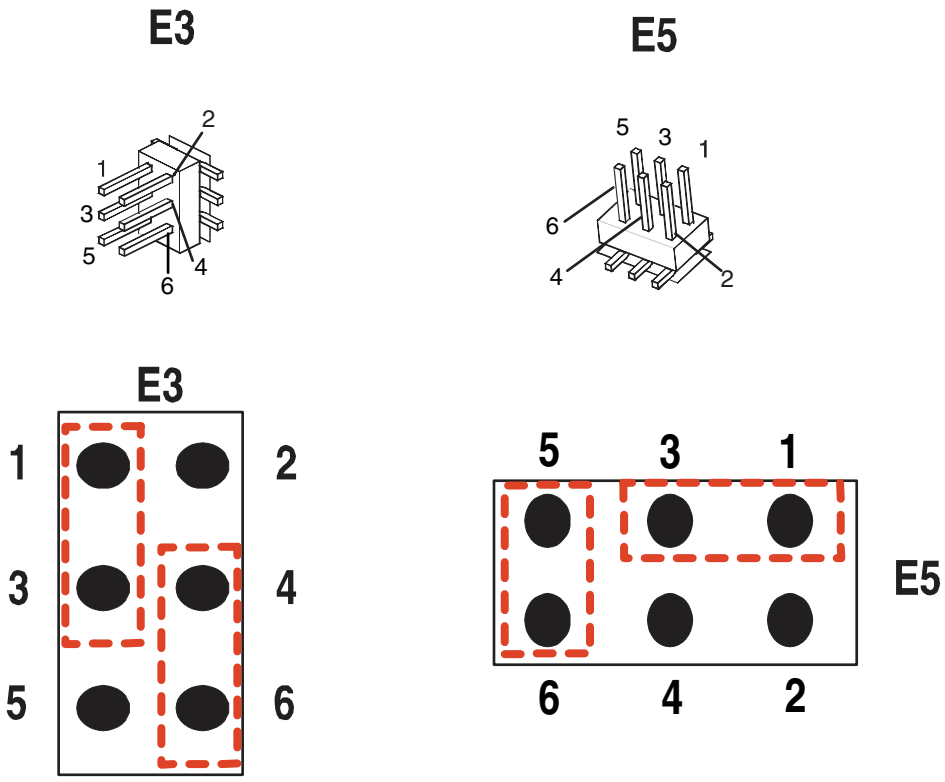


Table 1-4 Jumper Settings COM2 Modes (E3 and E5)

	RS232 Mode	RS422 Mode
E3	**1-3 and 4-6**	3-5 and 2-4
E5	**1-3 and 5-6**	5-6

1.6.5 COM2 Termination Switch (S2)

Switch S2 sets the termination for the RS422 COM2 port mode. When the switch is closed, termination is enabled, and when it is open, termination is disabled. The settings are listed in **Table 1-5**. The default settings are in bold.

Figure 1-12 RS422 Mode Termination Switch (S2)

Table 1-5 Switch Settings COM2 Port Termination (S2)

RS422 Termination	
Switches 1 & 2	Termination
Both OFF (Open)	**Disabled**
Both ON (Closed)	Enabled

NOTE

Both switch 1 and switch 2 of S2 need to be either both ON or both OFF.

1.6.6 Internal GPIO Connector (E4)

Figure 1-13 Internal GPIO Connector (E4)

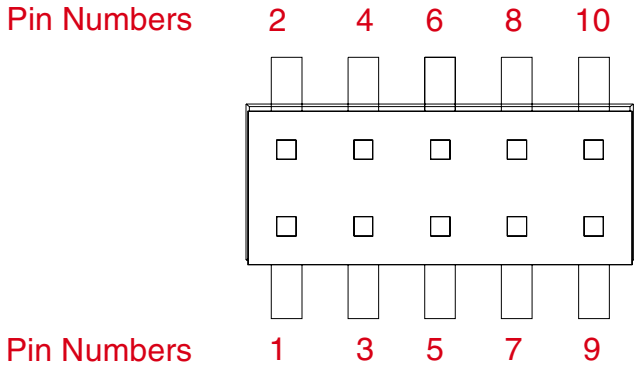


Table 1-6 Internal GPIO Connector (E4)

Pin	Signal	Pin	Signal
1	FPGA_GPIO0	2	FPGA_GPIO7
3	FPGA_GPIO1	4	FPGA_GPIO6
5	GND	6	GND
7	FPGA_GPIO2	8	FPGA_GPIO5
9	FPGA_GPIO3	10	FPGA_GPIO4

NOTE

The E4 GPIO connector is only supported when the optional P0 connector is loaded. If an option of the ACC-0627 does not have the VME P0 connector, then E4 will not be supported.

1.6.7 USB Connectors (J2,J3,J7,J8)

The Universal Serial Bus (USB) ports use an industry standard, four position (conductors) shielded connector. **Figure 1-14** illustrates the connector, while **Table 1-7** displays the pinout of the USB connectors.

Figure 1-14 USB Connectors Pinout (J2, J3, J7, J8)

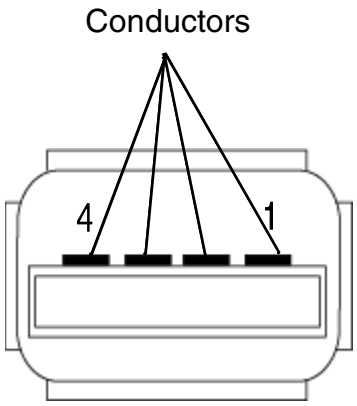


Table 1-7 USB Connector Pinout (J2, J3, J7, J8)

Pin	Signal
1	USB Power
2	USB Data -
3	USB Data +
4	USB Ground

1.6.8 DVI-D Connector (J1)

The DVI-D port provides a high speed digital connection for visual data types that are display technology independent. This DVI-D connector transmits digital data only. DVI is a display interface developed in response to the proliferation of digital flat-panel displays. **Figure 1-15** below is an illustration of a DVI-D connector. The pinout for this connector is shown in **Table 1-8**.

Figure 1-15 DVI-D Connector (J1)

Front Panel Connector

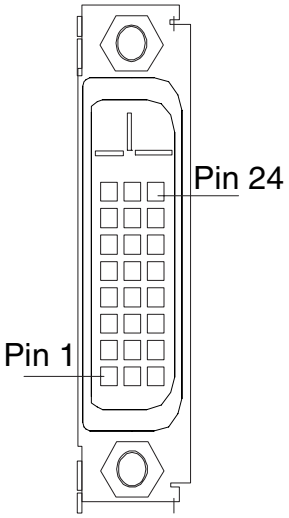


Table 1-8 DVI-D Connector Pinout (J1)

Pin	Signal	Pin	Signal
1	DVI_TX2N	13	N/C
2	DVI_TX2P	14	AVIDEO_PWR
3	GND	15	GND
4	N/C	16	DVI_HOT_PLUG_R
5	N/C	17	DVI_TX0N
6	DVI_DDCCLK	18	DVI_TX0P
7	DVI_DDCDATA	19	GND
8	N/C	20	N/C
9	DVI_TX1N	21	N/C
10	DVI_TX1P	22	GND
11	GND	23	DVI_TXCP
12	N/C	24	DVI_TXCN

1.6.9 Serial ATA Connectors (J6, J9, J11, J12, J13 and J15)

The ACC-0627 provides connector support for four SATA ports. Two of the eSATA ports (J11 and J12) are S3 switch selectable with the two internal SATA ports, J13 and J15. The connectors on the panel are single and shielded and the connectors onboard are single and unshielded.

Scalability SATA is a point-to-point connection and allows multiple ports to be aggregated into a single controller that is located on the motherboard.

Cabling SATA specifies a thin, point-to-point connection which allows for easy cable routing within a system. This avoids master/slave, "daisy-chaining," and termination issues. Also, better airflow can be realized compared to systems with wider ribbon cables.

Performance SATA technology will deliver up to 3.0 Gbit/s (300 MByte/s) of performance to each drive within a disk drive array.

Figure 1-16 illustrates the connectors. **Table 1-9** and **Table 1-10** display the pinout for both the SATA1 and SATA2 connectors. **Table 1-11** shows the switch selects for SATA 1 and SATA 2 ports via S3.

Figure 1-16 SATA Connectors and Block Diagram

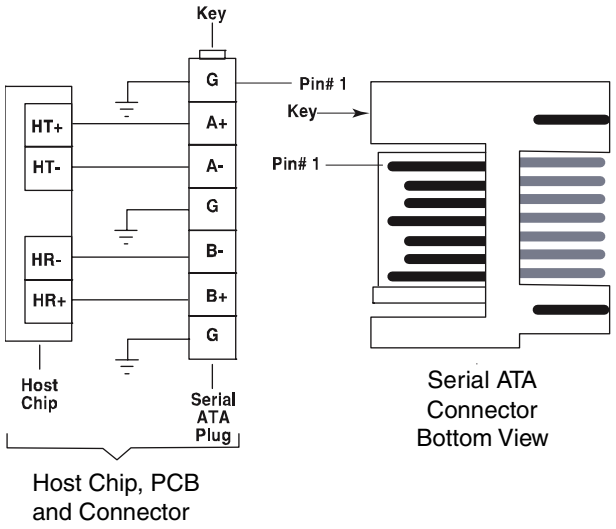


Table 1-9 eSATA Serial ATA Connector Pinouts Onboard (J6, J9, J11, J12)

Pin#	J6 Optional Signal	J9 Optional Signal	J11 Signal	J12 Signal
1	GND	GND	GND	GND
2	SATA4_TXP_BUF	SATA3_TXP_BUF	SATA2_TXP_BUF	SATA1_TXP_BUF
3	SATA4_TXN_BUF	SATA3_TXN_BUF	SATA2_TXN_BUF	SATA1_TXN_BUF
4	GND	GND	GND	GND
5	SATA4_RXN_BUF	SATA3_RXN_BUF	SATA2_RXN_BUF	SATA1_RXN_BUF
6	SATA4_RXP_BUF	SATA3_RXP_BUF	SATA2_RXP_BUF	SATA1_RXP_BUF
7	GND	GND	GND	GND

Table 1-10 Serial ATA Connector Pinouts Onboard (J13, J15)

Pin#	J15 Signal	J13 Signal
1	GND	GND
2	SATA1_TXP_INT	SATA2_TXP_INT
3	SATA1_TXN_INT	SATA2_TXN_INT
4	GND	GND
5	SATA1_RXN_INT	SATA2_RXN_INT
6	SATA1_RXP_INT	SATA2_RXP_INT
7	GND	GND

Table 1-11 Switch Selects for SATA 1 and SATA 2 Ports (S3)

Switch	Select	Function
S3	1 -4 open	Selects SATA channel 1 to eSATA on Connector J12.
S3	1-4 closed	Selects SATA Channel 1 to Internal SATA on Connector J15
S3	2 -3 open	Selects SATA channel 2 to eSATA on Connector J11.
S3	2-3 closed	Selects SATA Channel 2 to Internal SATA on Connector J13

1.6.10 Connectors (J4, J5, J10 and J14)-Reserved

The ACC-0627 Connectors J4, J5, J10 and J14 are not used and are Reserved and for Factory use only.

Figure 1-17 Connector Pinout-Reserved (J4, J5, J10, J14)

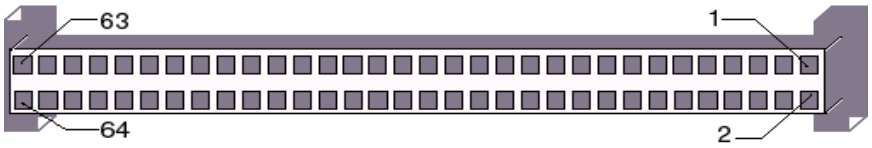


Table 1-12 PMC I/O Signals (J4) to Optional P0

Left Side		Right Side		Left Side		Right Side	
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	P0_CONN[1]	2	P0_CONN[2]	33	P0_CONN[33]	34	P0_CONN[34]
3	P0_CONN[3]	4	P0_CONN[4]	35	P0_CONN[35]	36	P0_CONN[36]
5	P0_CONN[5]	6	P0_CONN[6]	37	P0_CONN[37]	38	P0_CONN[38]
7	P0_CONN[7]	8	P0_CONN[8]	39	P0_CONN[39]	40	P0_CONN[40]
9	P0_CONN[9]	10	P0_CONN[10]	41	P0_CONN[41]	42	P0_CONN[42]
11	P0_CONN[11]	12	P0_CONN[12]	43	P0_CONN[43]	44	P0_CONN[44]
13	P0_CONN[13]	14	P0_CONN[14]	45	P0_CONN[45]	46	P0_CONN[46]
15	P0_CONN[15]	16	P0_CONN[16]	47	P0_CONN[47]	48	P0_CONN[48]
17	P0_CONN[17]	18	P0_CONN[18]	49	P0_CONN[49]	50	P0_CONN[50]
19	P0_CONN[19]	20	P0_CONN[20]	51	P0_CONN[51]	52	P0_CONN[52]
21	P0_CONN[21]	22	P0_CONN[22]	53	P0_CONN[53]	54	P0_CONN[54]
23	P0_CONN[23]	24	P0_CONN[24]	55	P0_CONN[55]	56	P0_CONN[56]
25	P0_CONN[25]	26	P0_CONN[26]	57	P0_CONN[57]	58	P0_CONN[58]
27	P0_CONN[27]	28	P0_CONN[28]	59	P0_CONN[59]	60	P0_CONN60]
29	P0_CONN[29]	30	P0_CONN[30]	61	P0_CONN[61]	62	P0_CONN[62]
31	P0_CONN[31]	32	P0_CONN[32]	63	P0_CONN[63]	64	P0_CONN[64]

Figure 1-18 PMC I/O PIM Connector Pinout (J5)

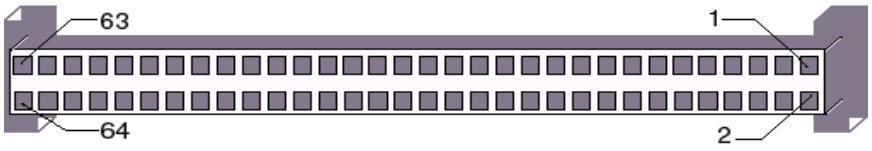


Table 1-13 PMC I/O PIM Connector Pinout (J5)

Left Side		Right Side		Left Side		Right Side	
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	N/C	2	VCC_12V	33	N/C	34	GND
3	N/C	4	N/C	35	N/C	36	N/C
5	VCC_5V	6	N/C	37	VCC_5V	38	N/C
7	N/C	8	N/C	39	N/C	40	N/C
9	N/C	10	VCC_3V3	41	N/C	42	VCC_3V3
11	N/C	12	N/C	43	N/C	44	N/C
13	GND	14	N/C	45	GND	46	N/C
15	N/C	16	N/C	47	N/C	48	N/C
17	N/C	18	GND	49	N/C	50	GND
19	N/C	20	N/C	51	N/C	52	N/C
21	VCC_5V	22	N/C	53	VCC_5V	54	N/C
23	N/C	24	N/C	55	N/C	56	N/C
25	N/C	26	VCC_3V3	57	N/C	58	VCC_3V3
27	N/C	28	N/C	59	N/C	60	N/C
29	GND	30	N/C	61	VCC_N12V	62	N/C
31	N/C	32	N/C	63	N/C	64	N/C

Figure 1-19 PMC I/O PIM Connector Pinout (J10)

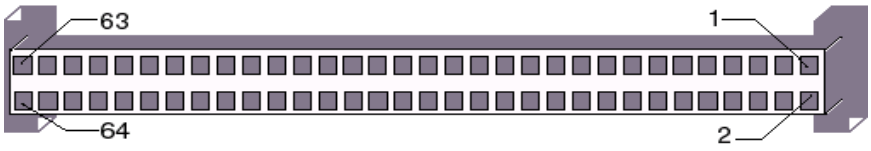


Table 1-14 PMC I/O PIM Connector Pinout (J10)

Left Side		Right Side		Left Side		Right Side	
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	N/C	2	VCC_12V	33	N/C	34	GND
3	N/C	4	N/C	35	N/C	36	N/C
5	VCC_5V	6	N/C	37	VCC_5V	38	N/C
7	N/C	8	N/C	39	N/C	40	N/C
9	N/C	10	VCC_3V3	41	N/C	42	VCC_3V3
11	N/C	12	N/C	43	N/C	44	N/C
13	GND	14	N/C	45	GND	46	N/C
15	N/C	16	N/C	47	N/C	48	N/C
17	N/C	18	GND	49	N/C	50	GND
19	N/C	20	N/C	51	N/C	52	N/C
21	VCC_5V	22	N/C	53	VCC_5V	54	N/C
23	N/C	24	N/C	55	N/C	56	N/C
25	N/C	26	VCC_3V3	57	N/C	58	VCC_3V3
27	N/C	28	N/C	59	N/C	60	N/C
29	GND	30	N/C	61	VCC_N12V	62	N/C
31	N/C	32	N/C	63	N/C	64	N/C

Figure 1-20 PMC I/O PIM Connector Pinout (J14)

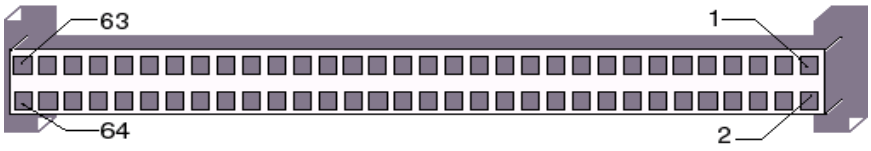


Table 1-15 PMC I/O PIM Connector Pinout (J14)

Left Side		Right Side		Left Side		Right Side	
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	CONN[1]	2	CONN[2]	33	CONN[33]	34	CONN[34]
3	CONN[3]	4	CONN[4]	35	CONN[35]	36	CONN[36]
5	CONN[5]	6	CONN[6]	37	CONN[37]	38	CONN[38]
7	CONN[7]	8	CONN[8]	39	CONN[39]	40	CONN[40]
9	CONN[9]	10	CONN[10]	41	CONN[41]	42	CONN[42]
11	CONN[11]	12	CONN[12]	43	CONN[43]	44	CONN[44]
13	CONN[13]	14	CONN[14]	45	CONN[45]	46	CONN[46]
15	CONN[15]	16	CONN[16]	47	N/C	48	N/C
17	CONN[17]	18	CONN[18]	49	N/C	50	N/C
19	CONN[19]	20	CONN[20]	51	N/C	52	N/C
21	CONN[21]	22	CONN[22]	53	N/C	54	N/C
23	CONN[23]	24	CONN[24]	55	N/C	56	N/C
25	CONN[25]	26	CONN[26]	57	N/C	58	N/C
27	CONN[27]	28	CONN[28]	59	N/C	60	N/C
29	CONN[29]	30	CONN[30]	61	N/C	62	N/C
31	CONN[31]	32	CONN[32]	63	N/C	64	N/C

Maintenance

If a GE product malfunctions, please verify the following:

1. Software version resident on the product
2. System configuration
3. Electrical connections
4. Jumper or configuration options
5. Boards are fully inserted into their proper connector location
6. Connector pins are clean and free from contamination
7. No components or adjacent boards were disturbed when inserting or removing the board from the chassis
8. Quality of cables and I/O connections

If products must be returned, contact GE for a Return Material Authorization (RMA) Number. **This RMA Number must be obtained prior to any return from Customer Care.**

GE Customer Care is available at: 1-800-433-2682 in North America, or +1-780-401-7700 for international calls. Or, visit our website at:

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Maintenance Prints

User level repairs are not recommended. The drawings and diagrams in this manual are for reference purposes only.

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Asia Pacific:
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