GE Fanuc Automation

ACC-0603RC*

VME Rear Transition Module for the V7865

INSTALLATION GUIDE
522-9300800603-000 REV. A

*NOTE: THE ACC-0603RC IS DESIGNED TO MEET THE EUROPEAN UNION (EU) RESTRICTION OF HAZARDOUS SUBSTANCE (ROHS) DIRECTIVE (2002/95/EC) CURRENT REVISION.

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Introduction

The ACC-0603RC is a Rear Transition Module (RTM), designed to transition the V7865 I/O signals from the VME P2 connector to standard I/O connectors.

The panel I/O access provides:

- One serial port connector (DB9), supporting both RS232 and RS422
- Two standard USB 2.0 connectors
- Digital Visual Interface-Digital (DVI-D) video support
- One Serial ATA (SATA) connector

The onboard I/O access provides:

- One PIM I/O interface
- One SATA connector

See Figure 1-1 on page 12 for an illustration of the board and connector layout.

The VME P2 connector carries all associated signals. All signals are routed from the single board computer (SBC) (installed in the front of the chassis) through the backplane to the ACC-0603RC P2 connector. Figure 1-2 on page 13 is an illustration of the ACC-0603RC installed in the VME rear I/O.

NOTE: The ACC-0603RC RTM is designed to work with the V7865 only.
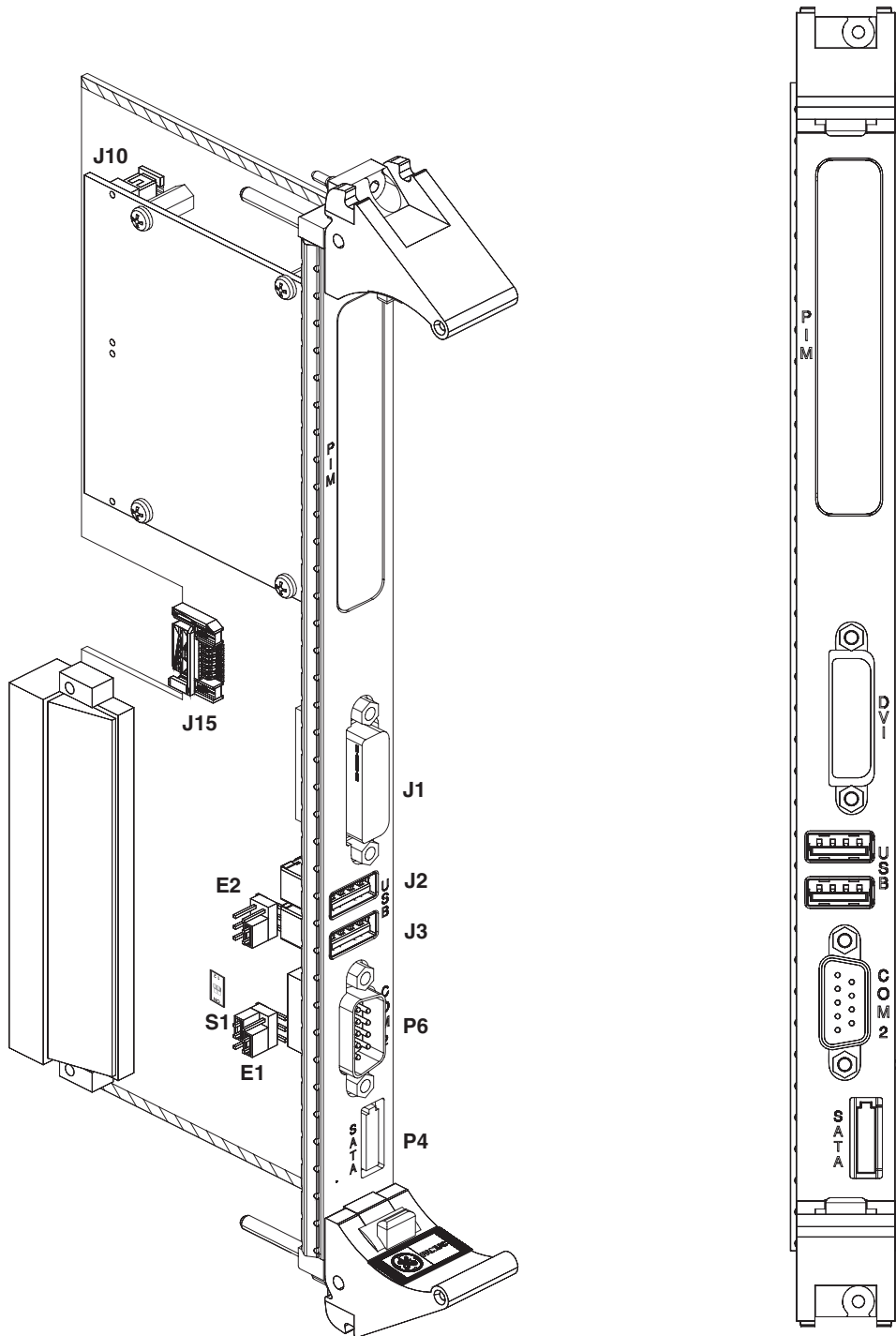
Figure 1-1 ACC-0603RC Rear Transition Module

Installation of the ACC-0603RC with the V7865 SBC

The ACC-0603RC RTM installs into the rear of the VME chassis using the P2 connector. An example installation of the ACC-0603RC and the V7865 is shown in Figure 1-2.
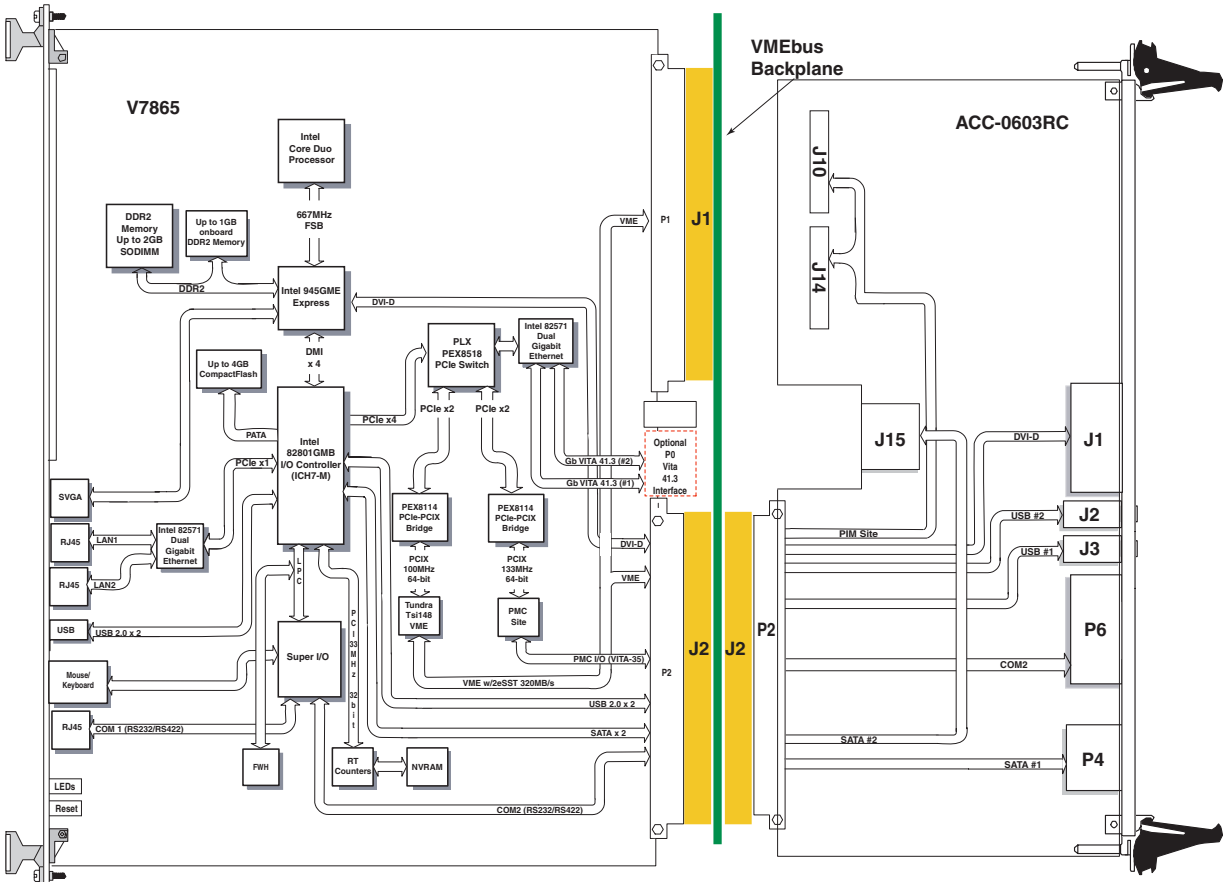
Figure 1-2 Installation of the ACC-0603RC Rear Transition Module with a V7865 SBC

NOTE: The ACC-0603RC RTM is designed to be installed in a chassis that supports the VME five row backplane connectors.

Connectors, Headers and Switch

There are nine connectors, two headers and one switch on the RTM. P2 is the VME backplane connector. P6 is the panel connector for the serial port COM2. Headers E1 and E2 are used to set the COM port mode. Switch S1 sets the termination for RS422 COM port mode. J2 and J3 are the panel connectors for the USB ports. J1 is the panel connector for DVI-D. J15 is the onboard SATA connector, and P4 is the panel connector for SATA. J10 and J14 are the onboard PIM connectors.

VME Connector (P2)

The P2 connector is a standard VME64, five row connector. The connector is used to route all the signals from the backplane to the ACC-603RC connectors. Figure 1-3 below illustrates the P2 connector; Table 1-1 below is the connector pinout.

P2

32   1
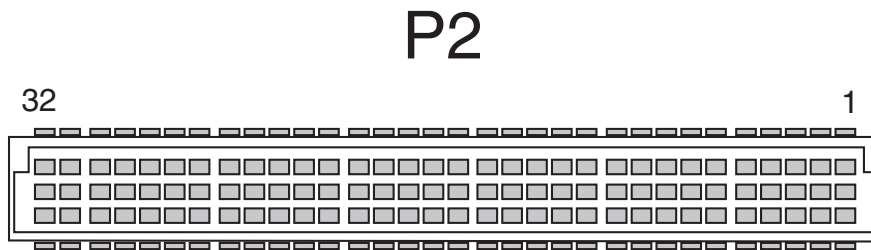
Figure 1-3 VME64 Connector (P2)

Table 1-1 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	SP1_RI	CONN[12]	GND
9	GND	N/C	SP1_2_232_422	CONN[13]	CONN[14]
10	USB_P3N	N/C	VCC_5V	CONN[15]	GND
11	USB_P3P	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]

Table 1-1 VME64 Connector Pinout (P2) (Continued)

Pin	Row A	Row B	Row C	Row D	Row Z
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	GND	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

COM2 Connector (P6)

The ACC-0603RC 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 DB9 connector and is hardware-configurable to be either RS232 or RS422. The diagram for the DB9 connector used for COM2 (serial port) is shown in the Figure 1-4. Table 1-2 shows the pinout for COM2 in both RS232 and RS422 modes.

Pin 1
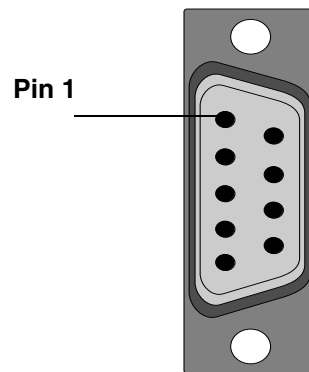
Figure 1-4 COM2 Connector (P6)

Table 1-2 COM2 Connector Pinout (P6)

RS232 Mode		RS422 Mode	
Pin	**Signal**	**Pin**	**Signal**
1	DCD	1	RXD-
2	RX	2	RXD+
3	TX	3	TXD+
4	DTR	4	RTS-
5	GND	5	TXD-
6	DSR	6	CTS-
7	RTS	7	RTS+
8	CTS	8	CTS+
9	RI	9	RI_T

COM2 Mode Headers (E1 and E2)

Jumpers E1 and E2 are user configurable for the COM2 modes. Table 1-3 shows the settings for RS232 mode and RS422 mode. The default settings are in **bold**.

NOTE: E3 through E6 are not configurable by the user.
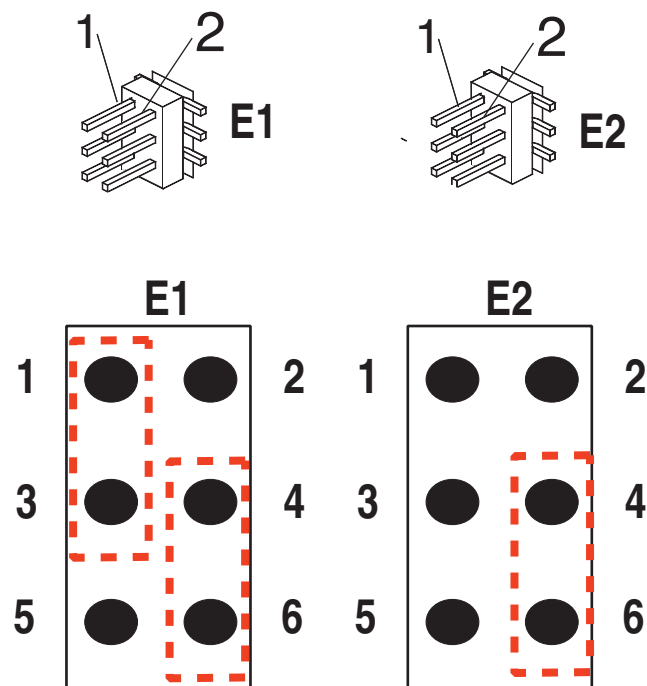
Figure 1-5 Setting COM2 Port Mode (E1 and E2)

Table 1-3 Jumper Settings COM2 Modes (E1 and E2)

	RS232 Mode	**RS422 Mode**
E1	**1-3 and 4-6**	4-6
E2	**4-6**	3-5 and 2-4

COM2 Termination Switch (S1)

Switch S1 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 1-4. The default settings are in **bold**.

Figure 1-6 RS422 Mode Termination Switch (S1)

Table 1-4 Switch Settings COM2 Port Termination (S1)

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

NOTE: Both switch 1 and switch 2 of S1 need to be either both ON or both OFF.

USB Connectors (J2 and J3)

The Universal Serial Bus (USB) ports use an industry standard, four position (conductors) shielded connector. Figure 1-7 illustrates the connector, while Table 1-5 shows the pinout of the USB connectors.
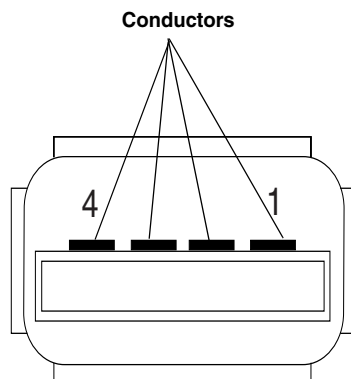
Figure 1-7 USB Connector (J2/J3)

Table 1-5 USB Connectors Pinout (J2/J3)

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

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 connector transmits digital data only. DVI is a display interface developed in response to the proliferation of digital flat-panel displays. Figure 1-8 below is an illustration of a DVI connector. The pinout for this connector is shown in Table 1-6.
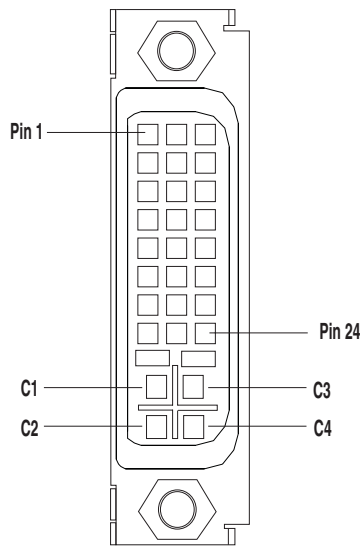
Figure 1-8 DVI Connector (J1)

Table 1-6 DVI 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_GOT_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

Serial ATA Connectors (P4 and J15)

The ACC-0603RC provides connector support for two SATA ports, one is located on the panel and the other one is onboard. The connector on the panel is single and shielded. The connector onboard is 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 1.5Gb/s (187.5MB/s) of performance to each drive within a disk drive array.

Figure 1-9 shows the connector and Table 1-7 shows the pinout for both the SATA1 and SATA2 connectors.
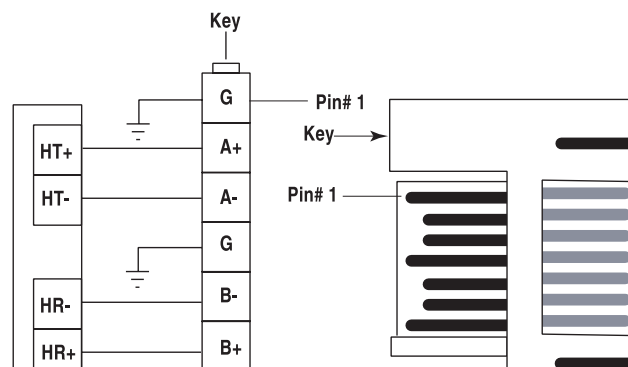

Figure 1-9 SATA Connector and Block Diagram (P4/J15)

Table 1-7 Serial ATA Connector Pinout (P4/J15)

Serial ATA Connector Pinout	
Pin#	**Signal**
1	GND
2	SATA_TXP_R
3	SATA_TXN_R
4	GND
5	SATA_RXN_R
6	SATA_RXP_R
7	GND

PMC I/O PIM Connectors (J10 and J14))

The ACC-0603RC provides a standard PIM connector that is used to route PMC I/O from the V7865 to a common module on the ACC-0603RC. See Figure 1-2 on page 13 for its location on the board. Figure 1-10 and Figure 1-11show the illustrations of the connector, and Table 1-8 and Table 1-9 show the respective pinouts.
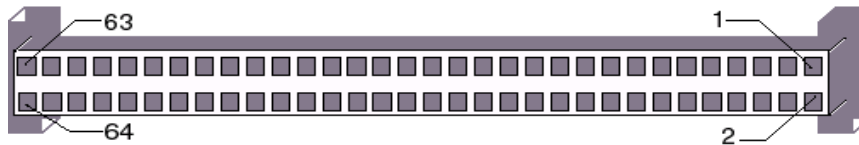
Figure 1-10 PMC I/O PIM Connector (J10)

Table 1-8 PMC I/O PIM Connector Pinout (J10)

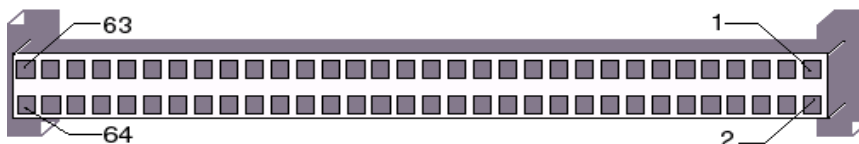| Left Side		Right Side		Left Side		Right Side	
Pin	**Signal**	**Pin**	**Signal**	**Pin**	**Signal**	**Pin**	**Signal**
1	N/C	2	VCC_12V	33	N/C	34	GND
3	N/C	4	N/C	35	N/C	36	N/C
5	VCC_5V	6	N/C	37	VCC_5V	38	N/C
7	N/C	8	N/C	39	N/C	40	N/C
9	N/C	10	VCC_3V3	41	N/C	42	VCC_3V3
11	N/C	12	N/C	43	N/C	44	N/C
13	GND	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	N/C	62	N/C
31	N/C	32	N/C	63	VCC_N12V	64	N/C

Figure 1-11 PMC I/O PIM Connector (J14)

Table 1-9 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

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If a GE Fanuc Embedded Systems product malfunctions, please verify the following:

1. Software 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 Fanuc Embedded Systems for a Return Material Authorization (RMA) Number. **This RMA Number must be obtained prior to any return**. RMAs are available at rma@gefanuc.com.

GE Fanuc Embedded Systems Customer Care is available at: 1-800-GEFANUC (or 1-800-433-2682), 1-780-401-7700 Or E-mail us at support.embeddedsystems@gefanuc.com.

Maintenance Prints

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

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