



RACEway Products

RACEway Test Adapter (RTA-S-2 & RTA-D-2) **User's Manual RevB**

TEK/TM-307B

June 2000

TEK Microsystems has made every effort to ensure that this manual is accurate and complete. However, TEK reserves the right to make changes and improvements to the products described in this manual at any time and without notice.

This product is covered by a limited warranty which is described in the manual. Other than the stated limited warranty, TEK disclaims all other warranties, including the warranties of merchantability and of fitness for a particular purpose. In the event of a failure of the hardware or software described in this manual, TEK's obligation is limited to repair or replacement of the defective item, or, if the item cannot be repaired or replaced, a refund of the purchase price for the item. TEK assumes no liability arising out of the application or use of the hardware or software, and assumes no responsibility for direct, indirect, incidental or consequential damages of any kind.

The electronic equipment described in this manual generates, uses, and can radiate radio frequency energy. Operation of this equipment in a residential area is likely to cause radio interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

TEK Microsystems' products are not authorized for use as critical components in life support devices or systems without the express written agreement of an officer of TEK Microsystems.

This manual is Copyright © 1999-2000, TEK Microsystems, Incorporated. All Rights Reserved.

RACE and RACE++ are trademarks of Mercury Computer Systems.

Other trademarks and registered trademarks used are owned by their respective manufacturers.

Document ordering code and release information:

URL: <http://www.tekmicro.com/tm307b.pdf>

TEK/TM-307B
June 2000



Table of Contents

- Product Description 1**
- Specifications 3**
 - Warranty Information..... 5
 - Contact Information 5
- Installation and Setup 6**
 - Overview 6
 - Unpacking and Handling..... 6
 - Installation..... 7

Product Description

The RACEway Test Adapter (RTA-2) allows for a two-slot motherboard interconnect on a VME backplane.

The RTA family of products offers a simple, easy way to implement a small RACEway or RACE++ system without the cost or complexity of a switched fabric Interlink module. The RTA supports stand-alone operation of 1 or 2 RACE++ devices, allowing small RACE++ systems to be built with direct RACE++ connection between the two slots. For example, a data recording or playback system using two PowerRACE-2A carriers and an RTA will support up to four PMC modules and continuous recording or playback at rates up to 400 MB/s.

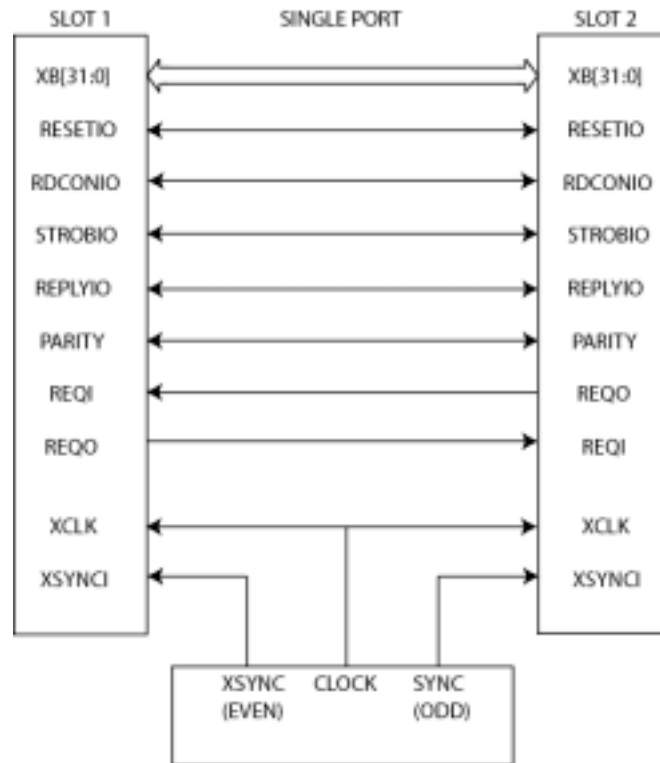
The RTA-2 comes in two versions: single-port and dual-port:

- The single version (RTA-S-2) is used to implement a single-port, 2-slot RACEway interconnect between two ANSI/VITA 5-1994 RACEway cards. The single port adapter may be used with both 3-row and 5-row P2 connectors.
- The dual version (RTA-D-2) is used to implement a dual-port, 2-slot RACEway interconnect between two dual-port VITA 5.1 RACEway cards. The dual port adapter may also be used for single port interfaces provided that the VME backplane has 5-row P2 connectors.

Both Test Adapters provide a jumper selectable XCLK source (40.00 or 66.67 MHz) and generate XCLK, XSYNC and XRESET for both slots. The Test Adapters do not provide a crossbar fabric or expansion capability: the single port adapter simply connects the two ports, and the dual port adapter simply connects port A of slot 1 to port A of slot 2, and also port B of slot 1 to port B of slot 2.

Both adapters are compliant with RACEway 1.0 and RACE++.

A block diagram is shown below.



Specifications

Word Width	32 bits
Clock Rate	40 or 66.666 MHz
Burst Data Rate	160 MB/s
Interface	ANSI/VITA 5-1994 Rev. 1.4 compatible VITA 5.1 rev 1.6.6 compatible RACE++ compatible
Power Requirements	+5 Volts
Operating Temperature	0 to 70 degrees C.
Storage Temperature	-40 to +85 degrees C.

Review of the following additional documentation may be useful for proper operation and control of the RTA-2.

- RACEway Interlink Specification (ANSI/VITA 5-1994)
Web site: <http://www.vita.com>
Available for purchase from the VITA Office. Call 480-951-8866 to order.
- RACEway Interlink Specification, proposed revision, draft 1.6.6 (VITA 5.1)
Web site: <http://www.vita.com>
URL: http://www.vita.com/vso/draftstd/vita5.1_r166.pdf
- VME64 (ANSI/VITA 1-1994)
Web site: <http://www.vita.com>
Available for purchase from the VITA Office. Call 480-951-8866 to order.
- VME64 Extensions (ANSI/VITA 1.1-1997)
Web site: <http://www.vita.com>
Available for purchase from the VITA Office. Call 480-951-8866 to order.

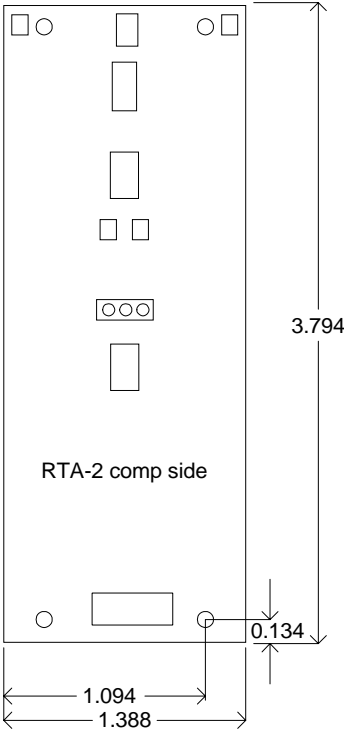
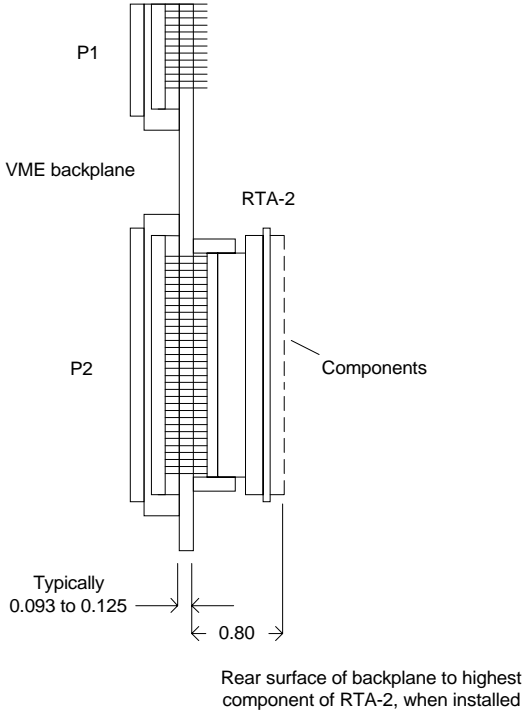
VME64 Extensions (ANSI/VITA 1.1-1997)

Web site: <http://www.vita.com>

Available for purchase from the VITA Office. Call 480-951-8866 to order.

Some PDF or HTML versions of these data sheets may be accessed through the manufacturers' web pages as shown above. The URLs were valid as of the date of this manual.

Dimensions



Support Information

Warranty Information

The RTA-2 is warranted against defects in material or workmanship for a period of one year from the original date of purchase. If a failure occurs within the warranty period, TEK will repair or replace the product at no cost to the user. For warranty repair, please contact TEK as described below and obtain an RMA number and return shipping instructions.

Contact Information

If technical support or repair assistance is required, please contact TEK through one of the following methods:

Internet	http://www.tekmicro.com
Email	support@tekmicro.com
Telephone	+1 781 270 0808
Facsimile	+1 781 270 0813
Mail	TEK Microsystems, Incorporated One North Avenue Burlington, MA 01803-3313

Installation and Setup

Overview

The RTA-2 is a 35mm x 95mm card which interconnects two slots in a VME backplane. The installation and setup procedure consists of the following steps:

1. Unpacking and inspecting the card.
2. Installation of the RTA-2 into the VME backplane.

Each of these steps is described in more detail in the sections below.

Unpacking and Handling

The RTA-2 is shipped inside an ESD-safe container. Unpacking the RTA-2 simply requires removal of card from the ESD bag.

The RTA-2 package should contain the following items upon unpacking:

- RTA-2 card
- 3-row connector shrouds with tall mounting feet (2 each) and short mounting feet (2 each) (RTA-S-2 only)
- User Manual

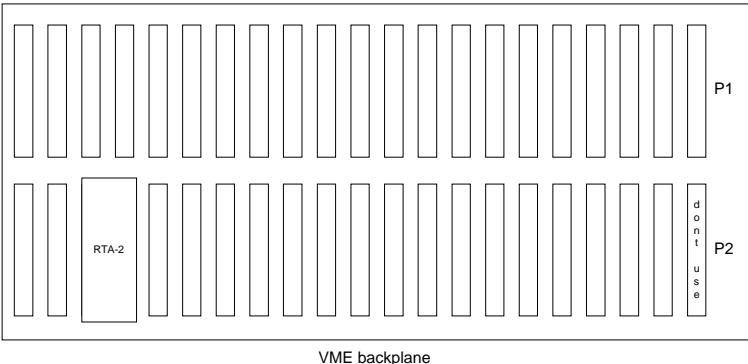
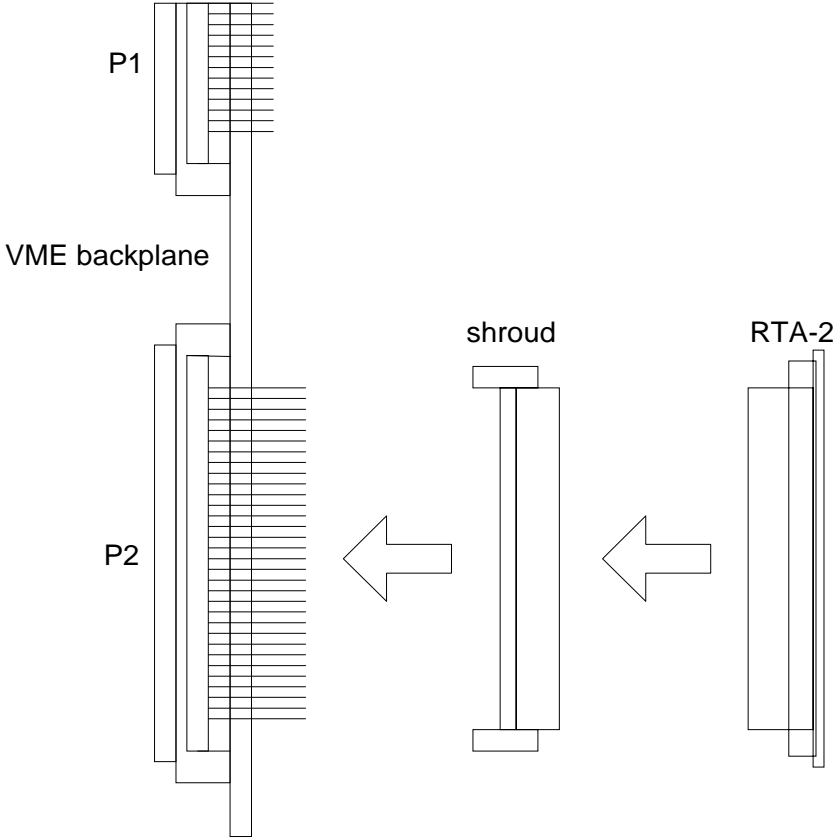
The RTA-2 contains electronic circuits that are susceptible to damage through mishandling or through application of electrostatic discharge (ESD). The following precautions should be observed when unpacking, installing, or using an RTA-2 card.

- Whenever the RTA-2 is being handled outside of an ESD-safe shipping container, the user should maintain ESD-safe conditions through usage of a grounding wrist strap or other such static preventive measures.
- The RTA-2 should never be installed or removed from the VME backplane when power is being applied to the system or applied directly to the card.
- The RTA-2 should never be forced into the VME backplane during installation. Insertion of the card into should require only moderate “hand pressure”. If more pressure is required for the insertion the card should be removed and the connectors examined to determine the source of the problem.

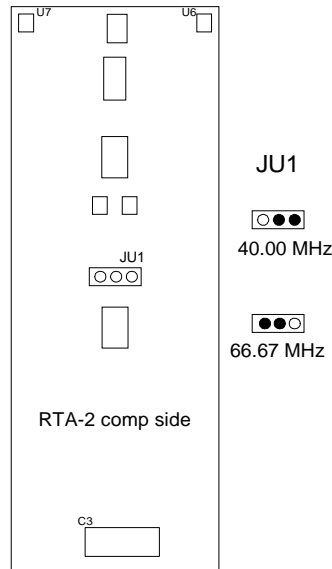
Like any other electronic circuit card, the RTA-2 will provide years of reliable operation if handled in accordance with these guidelines.

Installation

Install each RTA-2 card as follows (see illustrations):



1. Select two backplane slots. Do not install an RTA-2 into slot 1 of the VME backplane. The pins in rows A and C (Z and D as well if applicable) of the P2 connectors must be wirewrap length.
2. Set the clock jumper (JU1). For systems using RACEway, jump pins 1 and 2 to establish a 40.00 MHz clock signal. For systems using RACE++, jump pins 2 and 3 for a 66.67 MHz clock signal. See below for jumper configurations:



Note: Backplanes are generally equipped with connector shrouds on the rear side of P2 to facilitate installation of I/O interfaces. If the backplane being used does not already have shrouds installed, TEK strongly recommends adding them before installation of the RTA-2.

3. If the VME backplane in question has P2 shrouds already, skip to step 4. 5-row backplanes generally have shrouds installed already. If your 5-row backplane does not have shrouds, please contact TEK for assistance. 3-row connector shrouds are provided with the RTA-S-2. Install the two corresponding connector shrouds in the appropriate slots to be used by the RTA-S-2. Use the tall mounting feet connector shrouds for wirewrap pins that extend about 0.5 inches. Use the short mounting feet connector shrouds for wirewrap pins that extend about 0.3 inches. If you have P2 pins longer or shorter than the above values, please contact TEK for assistance.
4. Plug the RTA-2 into the shrouds or backplane slots. Install the RTA so that U7 is at the top-left corner and the capacitor C3 is at the bottom of the RTA unit when installed. Apply uniform pressure to seat the board properly. Compatible RACEway or RACE++ signals must be present on rows A and C (Z and D as well if applicable) of P2 with all boards that the RTA-2 connects to. **Caution: Failure to observe the correct placement can destroy the RTA and the cards connected to it.**