

## RTDS™ USES SHARC TO TAKE ON STATCOM

### POWER UPGRADE FOR THE RTDS

The new 3PC (3 Processor Card), housing three Analogue Devices AD21062 (SHARC) DSP's per card, has opened the door to high level language programming and the implementation of highly advanced component models.

The 3PC is 100% compatible with the current RTDS hardware architecture and is intended to be used in a rack together with the present TPC, WIC and IRC cards. To upgrade the capability of an existing rack, one or more 3PC's can simply be inserted in place of TPC's. Therefore, both new and existing RTDS customers can take advantage of the increased processing power provided by the 3PC.

Initially, the models being developed for the 3PC are:

- complex power system components which were previously not implemented due to limitations in processing power
- models which previously required a large number of processors (e.g. CT's & CVT's)

- control system components (generally implemented on the TPC's as well)

The first model implemented on the 3PC was a three-phase voltage type bridge, or **STATCOM**, based on **GTO technology**. Not only does this model take advantage of the processing power provided by the 3PC, but it also utilizes a novel approach to the implementation of converter bridges in digital simulation.

Before porting the STATCOM to the RTDS, the "C" algorithm was tested off-line. After testing was completed, **the DSP code for the 3PC was generated by cross compiling the C code** with an efficient GNU compiler for the SHARC.

Being able to efficiently generate DSP code for the RTDS by cross compiling C has greatly in-

### IEEE Summer Power Meeting in Berlin

*RTDS Technologies will be hosting a hospitality suite at the IEEE Summer Power Meeting which is to be held in conjunction with the ETG Tage July 20-24, 1997 in Berlin, Germany. Komm und besuch uns.*

creased the speed of new model development and opened the door to user defined models.

The 3PC, running in a rack together with TPC's, and the STATCOM model will be part of the RTDS demonstration at the second International Conference on Digital Power System Simulators (ICDS-97) in Montreal, May 28-30, 1997.

## GLOBAL BUS CARD

We are continually working to improve the RTDS and make it easier for our users to perform simulation studies. The Global Bus Card is one example of this effort.

Prior to the development of the Global Bus Card, users were forced to physically open and close connections in order to allow independent use of racks within a multi-rack simulator. For example if the user had a 5 rack simulator and wanted to run two independent cases simultaneously, perhaps a 2-rack case and a 3-rack case for different studies, the global bus connection between racks 2 and 3 had to be opened.

With the Global Bus Card installed, the user is no longer required to take any action. The RTDS WIC OS software makes the connection and/or disconnection of the global bus transparent to the user.

The Global Bus Card is standard equipment on all new RTDS simulators and existing systems can easily be retrofitted with the device.

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## WPRC in Spokane

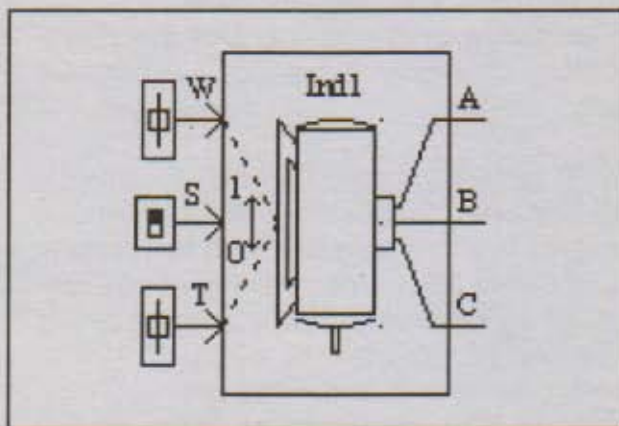
*The 24th Western Protective Relay Conference (WPRC) will be held in Spokane, Washington, October 21-23, 1997. We will again be hosting a hospitality suite during the conference and welcome you to drop by for a demonstration of the most advance protective relay test system available.*

## INDUCTION MACHINE

An induction machine model using a DQ0 representation was recently added to the RTDS component library. The model allows for one or two rotor cages and incorporates saturation on both the D and Q axes.

The induction machine model can be operated as a generator or motor with built in features to allow either constant speed or constant torque control. Should a more complex control mode be required, an interface to the controls compiler (see RTDS News July 1996) has been provided.

The induction machine model has already been successfully used in commercial studies and its correct behavior verified (e.g. zero speed start-up, self excitation, etc.)



Induction Machine PSCAD/Draft Icon

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