The TART Times

The newsletter for TART users

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TART95 on Power Mac

TART95 is now available for use on a Power MAC. As mentioned in the TART95 documentation, TART95 is now completely written in modern, standard FORTRAN and it is so computer independent it is a plug-in on virtually any computer.

The following table is based on running the TART95 68 fast critical assembly benchmark problem using the floor code TARTND on a CRAY-YMP, and TART95 on a variety of computers, including a Power MAC. The results indicate that using the ABSOFT FORTRAN-77 compiler, for this benchmark problem the Power MAC out performed CRAY J90, SUN, Meiko, SGI, IBM-RSIC and IBM-PC.

Table I. TART95 68 fast critical assembly benchmark problem.

Code	COMPUTER	Running Time (Seconds)	Ratio to TARTNP CRAY-YMP
TARTNP	CRAY-YMP	5396	1.0
TART95	CRAY-YMP	4912	0.91
TART95	CARY-J90	9678	1.79
TART95	HP-350	4322	.80
TART95	DEC-ALPHA	6130	1.14
TART95	SUN	9673	1.79
TART95	Meiko	9993	1.85
TART95	SGI	10157	1.88
TART95	IBM-RSIC	14838	2.75
TART95	IBM-PC	18437	3.41
TART95	Power-Mac	7902	1.46

TART95 Documentation is Still Available

If you are a TART95 user, for a copy of the TART95 documentation contact Red Cullen, as soon as possible, before the few remaining copies are gone.

TART95 Now Generally Available

TART95 is now generally available through the Radiation Shielding Information Center (RSIC), the Oak Ridge National Laboratory code distribution center. To obtain a copy of TART95 from RSIC contact,

Radiation Shielding Information Center
Oak Ridge National Laboratory
P.O. Box 2008
Oak Ridge, TN 37831-6362

Do You Need Help?

If you need help using TART95 contact Red Cullen at 3-7359 (offsite use (510) 423-7359). If you are having problems with a TART95 input deck send it to cullen1@llnl.gov.

Coming Attractions for '96

In the coming year a number of improvements are planned for the first release of TART96. These include,

New Neutron and Photon Data

The TART 175 neutron groups and photon points have now been in use for almost 25 years. This data representation was selected based on the constraints of the size of computers available 25 years ago, and was only optimized for "fast" neutron and photon calculations. In the coming year a new neutron group structure and photon points will be incorporated in TART96. The new data representation is optimized for use across the entire range of neutron and photon applications.

The new neutron 650 group structure extends from 10^{-4} eV (the lower energy limit of our ENDL data base) up to 1 GeV. Currently neutron data is generally available only up to 20 MeV, but if and when data is available at higher energies TART95 will be ready to use it.

The new photon 401 point data extends from 10 eV (the lower energy limit of our EPDL data base) up to 1 GeV. EPDL already includes all of the data required, so that we can immediately extend photon calculations to higher energy.

If you are a fan of the older 175 neutron and photon data and would prefer to use it, not to worry: TART96 is designed to use either the old or new data, so you are free to use whatever you prefer.

Improved Self-Shielding

The multi-band method of handling neutron resonance self-shielding that has been used by TART for the last 20 years, is now being extended: 1) currently the treatment is limited to only two cross sections bands per energy group. The new treatment will use a true multi-band method, allowing more than two bands per group, 3) self-shielding will be extended to also handle the unresolved resonance energy range. The current treatment only uses the data from ENDL, which does not include any unresolved resonance parameters, i.e., only average unshielded cross sections are used.

What Extensions Do You Need?

If in planning the extensions for TART96, there is something that we have overlooked and you need for your applications, please contact Red Cullen at 3-7359, so that we can discuss your needs.

Interesting Applications

If you have an interesting TART95 application that you would like to include in this newsletter and share with our readers, please contact the editor of this newsletter, Susan Mangels, at mangels1@llnl.gov.