The TART Times

The newsletter for TART users

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New Version of TART 95

A new version of TART95 (version 95-2, Oct. '95) is now available on many types of computers, including: CRAY (XMP, YMP, J90), SUN, SGI, HP, DEC Alpha, Meiko, IBM-RSIC and IBM-PC. This version includes new data files (to correct all problems described in the TART95 memo dated August 28, 1995), a new thermal scattering module, and various other improvements. This is the last planned release of TART95 and its data files this calendar year.

TART95 on CRAY J90's

TART95 is now available on the Livermore J90s. It was simply compile, load and go - no error messages, not even any warnings. The entire installation only took a few minutes. 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 the J90s. The good news is that the J90 calculated results are the same as on all other computers. The bad news is that based on the running time for TART95 on YMP and J90, the J90 has about half the speed of a YMP; it has less than twice the speed of an IBM-PC-DX2/66.

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	CRAY-J90	9678	1.79
TART95	HP-735	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-RISC	14838	2.75
TART95	IBM-PC	18437	3.41

Do You Need Help?

If you need help using TART95 contact Red Cullen at 3-7359. If you are having problems with a TART95 input deck e. mail it to cullen1@llnl.gov.

Third Printing of Documentation

Since its initial release in July 1995 the demand for copies of the TART95 documentation has been so great that the documentation is already in its third printing, and available copies are still going fast. If you are a TART95 user, contact Red Cullen for a copy of the documentation as soon as possible, before the remaining copies are all gone.

ENDF/B-VI Data

The TARTND and initial TART95 data libraries are based on the Livermore ENDL nuclear data. An alternative set of data files based on the ENDF/B-VI data is now available for use with TART95.

For fast neutron applications ENDL is a good choice, since it was designed for fusion and fast fission systems. In contrast ENDF/B-VI is a good choice for slower neutron applications, particularly for thermal neutron applications; it has been benchmarked against many nuclear reactors.

New Thermal Scattering

TART95 now includes a new thermal scattering routine; for details see, THERMAL: A Routine Designed to Calculate Neutron Thermal Scattering, UCRL-ID-120560, Rev. 1, September 19, 1995. This routine is considerably faster and more accurate than the method previously used by TARTND and TART95.

NIF Activation

Jeff Latkowski of the Target Area Technology Group, in collaboration with Mike Tobin and Javier Sanz, has assembled a system of codes that allow calculation of the neutron (and sequential charged particle) activation of fusion systems. This system includes the ACAB code, a radionuclide generation/depletion code (based on ORIGEN), and the European Activation File (EAF 3.1); EAF 3.1 contains data for nearly 23,000 reactions on 729 target atoms. This system is currently running on an HP/735 workstation, but conversion to other computers should be relatively simple. For details, contact Jeff Latkowski or see UCRL-MA-122002 and UCRL-MA-122003.

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 2-1521 or e-mail to mangels1@llnl.gov.