Atomic Weapons Establishment

Reusable Nuclear Data Input

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Improving computational performance

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The component is written in FORTRAN 90 to take advantage of derived types and whole array operations, as well as being able to interface with existing FORTRAN 77 codes.

The first stage in the development process was a series of meetings with the code developers who would use the component, in order to define an interface flexible enough for their diverse needs.

During development, prototyping and benchmarking were used to ensure performance-sensitive areas which the developers had highlighted in the design phase were operating at satisfactory speeds behind the interface. This was crucial, so that there was no need for developers to have to bypass the component in order to obtain their desired performance - the component could just be used as a black box.

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