To: X3J3
From: /interop
Subject: definition of c_loc

Ref: 98-239 (and various predecessors) promised a "loc" function.

Specification

When interoperating with a C facility, it is often necessary to pass the "address" of an entity (data or procedure). A "loc" function has long been part of many Fortran processors to provide this functionality. In keeping with the style of the ISO_C_BINDING module, a C_LOC function is defined.

Syntax

C_LOC(x)

Description	Provide the "C address".
Class	Inquiry
Argument	x shall be either a variable that has the TARGET attribute and interoperates with some C type or a procedure that has the BIND(C) attribute. It shall not be an array pointer, an assumed-shape array, or an array section.

J3 Discussion note: does not include : common block, namelist group, pdt variable, enum decls, named constants

Result characteristics	a scalar of type C_PTR
Result Value	The value that the *target C processor* returns as the result of the unary "&" operator, as defined in C9x, 6.5.3.2.

EXAMPLE	USE ISO_C_BINDING REAL, TARGET,DIMENSION (10) :: A TYPE(C_PTR) :: C C = C_LOC(A) CALL FOO(C) ! FOO IS A C ROUTINE

Semantics

C_LOC is a function, defined in the intrinsic module ISO_C, which returns the value that the *target C processor* returns as the result of the unary "&" operator, as defined in C9x 6.5.3.2.

Edits

Change 16.1 "The ISO_C_TYPES" to "The ISO_C_BINDING" this change should propagate as needed. Subgroup found only references at 377: 28 and 377:33.

Add C_LOC to the list of provided functions, at the end of 16.1 (after 377:32). Also add "The inquiry function C_LOC() (16.2.3) is also provided.

Add a new section 16.2.3, entitled "C_LOC The C address operator".
Add the following introductory text:

> C interfaces are primarily defined in terms of "addresses". C_LOC is provided so that Fortran applications can determine the appropriate value to use in calling C facilities.

Add the syntax description above into the document at "this" point.