Subject: Get characteristics of memory environment
From: Van Snyder
Reference: 03-258r1, section 2.4.4.1

Number

TBD

Title

Get characteristics of memory environment.

Submitted By

J3

Status

For consideration.

Basic Functionality

Get characteristics of memory environment.

Rationale

Many algorithms in linear algebra have highest performance when blocked. The block dimensions depend on the characteristics of the cache.

Estimated Impact

Minor – a few intrinsic functions.

Detailed Specification

Provide intrinsic procedures to inquire the number of levels of cache, and the size and relative speed (or relative access time) of each level of cache. Main memory should be included in the hierarchy. It may be last, or next-to-last if virtual memory is included. The reported size should be in terms of an argument of the procedure, not in machine-dependent units such as "words" or "computer science" units such as "bytes." The reported relative speed (or relative access time) should take the cache data transfer width into account. Additional parameters of the cache, e.g. is it set-associative and if so how many ways?, is it write-through?, is it write-back?, etc., are interesting but haven't as much effect as the first three.

History