Abstract

This document describes the interface and functional specification of a Protocol Processing Engine (PPE) for workstation clusters. The PPE is intended to provide the support necessary to implement low latency protocols requiring only low resource (cpu and bus bandwidth) consumption.

1 Introduction

We describe the function of and the interface to a device to aid in protocol processing for workstation cluster multicomputers: the device is referred to (perhaps a bit inappropriately) as the Protocol Processing Engine (PPE). The protocol base which we envision the PPE supporting is a sender-based protocol. The bulk of the actual protocol implementation is intended to be done in (kernel-level) software.

2 Overview

The specification will begin with short descriptions of the majority of the control and status registers of the PPE. The function of these registers will be explained in greater detail in later sections. Next we deal with message transmission, defining the set(s) of registers used to initiate a particular transmission, the data structures that the PPE must interpret, and the expected software-visible behavior entailed in a transmission. A similar discussion of message reception follows. Following this are sections dealing with initialization and fault handling which complete the specification.

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