CONGRUENT SOFTWARE, INC.
3998 Whittle Avenue
Oakland, CA 94602
(510) 531-5472
(510) 531-2942 FAX

FROM: Peter Johansson

TO: IEEE P1394a Working Group

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RE: Uniform values in the NODE_IDS register

The most significant 10 bits of the NODE_IDS register hold the *bus_id*, one of two values that a node's link shall recognize as a valid address in primary packets—the other is fixed, $3FF_{16}$, the local bus ID.

ISO/IEC 13213:1994 and IEEE Std 1394-1995 both defined NODE_IDS in anticipation of facilities that permit multiple buses to be configured (or bridged together). However, neither standard addresses the question of whether or not it is meaningful for different nodes on the same bus to have differing values in the *bus_id* portion of NODE_IDS.

There are novel ways in which, on a single bus, advantage might be taken of different *bus_id* values for different nodes. Hardware filtering of traffic intended for only a subset of the bus is one such possibility. I believe that the usefulness of any of these plans breaks down when Serial Bus to Serial Bus bridges are introduced. This work is underway in the P1394.1 working group.

Because of this, I believe that ambiguity should be removed and make the following proposal for section 9 of P1394a.

9.x NODE_IDS register

The NODE_IDS register is used to identify and modify the current bus ID and physical ID values, which directly affect the initial node address. Serial Bus reserves the 16-bit bus-dependent field, as indicated by the shaded field within figure 9-x.

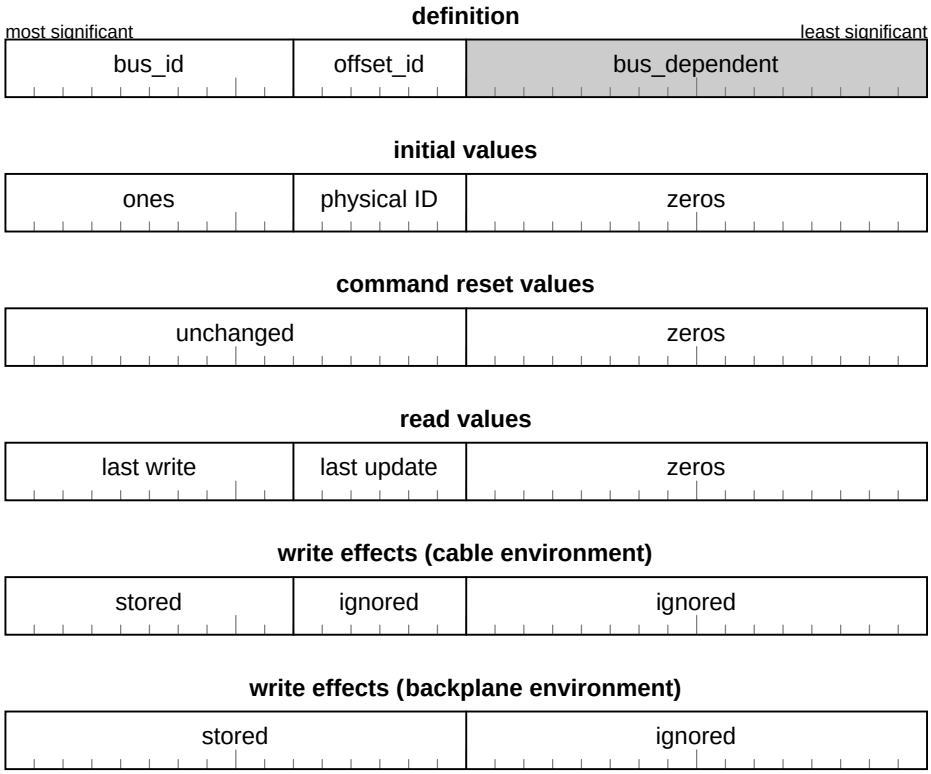

Figure 9-x – FAIRNESS_BUDGET format

The 10-bit read/write ***bus_id*** field provides software with a mechanism for reconfiguration of the initial node address space. The *bus_id* field provides a means for multiple-bus configurations to distinguish node addresses on one bus from those on another. All nodes on a bus shall have identical *bus_id* values .

The 6-bit read-only ***offset_id*** field shall have a value generated as a side-effect of the bus initialization process. Within this standard, the value of NODE_IDS.*offset_id* is also known as the physical ID value of the node. This field is read only in the cable environment and read/write in the backplane environment.

The 16-bit read-only bus-dependent field shall be reserved.

NOTE— If there are any side-effects of a write transaction to a register, a node shall delay the return of a transaction response until all effects of the write are complete. In the case of the NODE_IDS register, a return of resp_complete indicates that the node recognizes transactions to the newly assigned NODE_IDS value. The contents of the source_ID field of the response packet shall reflect the updated value of the NODE_IDS register.