

Bridge generated response subactions as submitted to the p1394.1 committee

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**This contribution is one of several, presented for independent review.
An overall contribution, which provides the context for multiple contributions,
is also provided in BR047R08.**

The bus bridge sometimes generates responses. For such responses, there is value in returning additional information, including a sub-response code, and the responder identifier. A portion of the offset field is also returned, with the intent of extending the possible numbers of concurrently outstanding transactions.

1.6.2 Remote posted-responder transactions

The remote transaction may be posted at its destination node, as illustrated in figure 1 and figure 2. When this occurs, the final c.0 bridge is responsible for generating (4) the response after observing (3) the ack_completion.

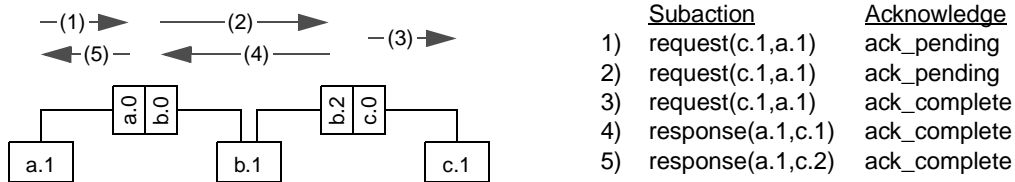


Figure 1—Remote posted-write transaction

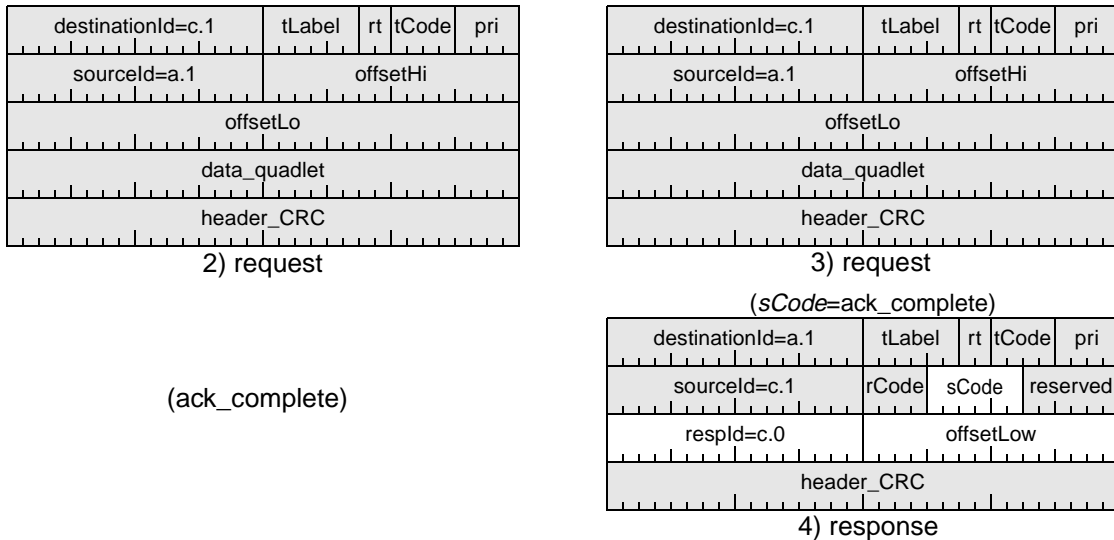


Figure 2—Remote posted-write subactions

The final bridge also responsible for synthesizing the appropriate response when other concluding acknowledge indications (such as ack_conflict or ack_type_error) are observed. The acknowledge code is placed into the returned response subaction, allowing the requester to better diagnose the problem. The rCode value is set to indicate how the terminated transaction should be processed; its value depends on which acknowledge code is returned (see 7.3.1).

An acknowledge-missing on the remote bus cannot safely be reported by returning a response, since the acknowledge may have been corrupted and a normal response is about to be returned. Instead, the request shall be discarded and the requester detects this error through a split-response timeout, as detailed in 3.1.7.

7.2 Bridge generated responses

A bridge sometimes generates a response on behalf of the responder. When this occurs, the bridge places its *nodeId* in the *responderId* field of the response, as illustrated in the following subclauses. Returning the *responderId* value is intended to simplify diagnostic software, by identifying where responses are actually generated.

7.2.1 Bridge-generated read response

The format of a bridge-generated block-read response includes supplemental information, as illustrated in figure 3. All bridge-generated responses (including ReadLocal and ReadRemote) set the *extended_tcode* value to zero.

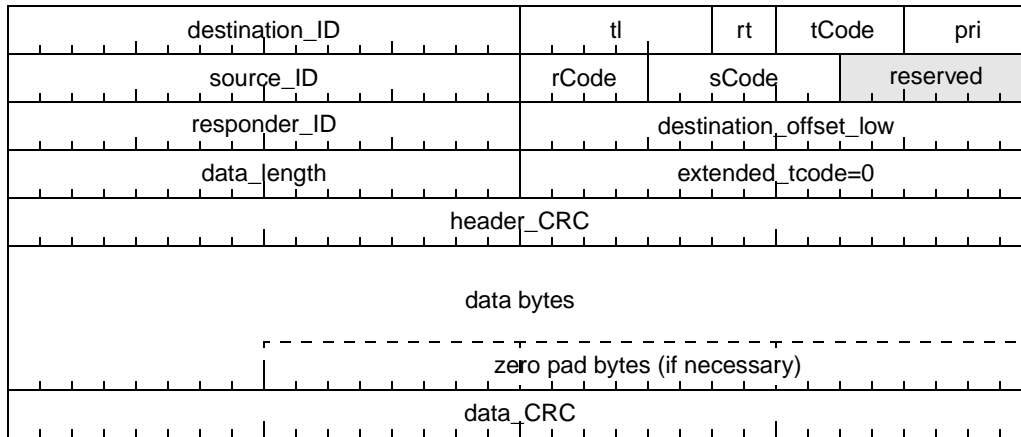


Figure 3—FirstRead response

The 4-bit *sCode* field is specified in 7.3.1. The 16-bit *responder_ID* is the virtual *nodeId* of the bridge portal that generated the response. The *destination_offset_low* field is a copy of the least-significant portion of the request packet's *destination_offset* field.

In the case of an error, the *rCode* value other than *resp_complete* is returned and the data payload is stripped, as is the case for all bridge-generated error-reporting responses.

7.2.2 Bridge generated write responses

The format of a bridge-generated block-write response, or any error-reporting responses, has the format of a write response packet. Some of the previously reserved fields have defined meanings, as illustrated in figure 4.

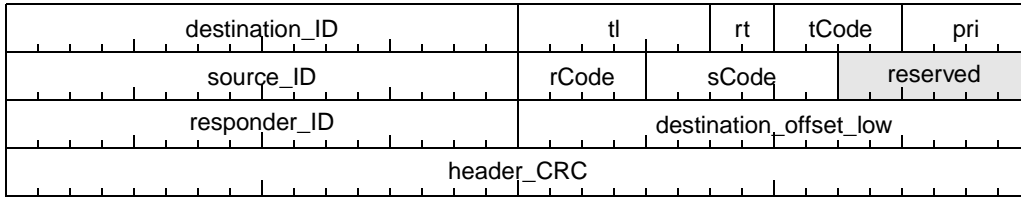


Figure 4—Bridge generated write response

The 4-bit *sCode* field is specified in 7.3.1. The 16-bit *responder_ID* is the virtual nodeId of the bridge portal that generated the response. The *destination_offset_low* field is a copy of the least-significant portion of the request packet's *destination_offset* field. The remaining fields are defined by the Serial Bus standard.

7.2.3 Quadlet read response format

The quadlet read response packet includes a 16-bit *responder_ID* field, as illustrated in figure 5.

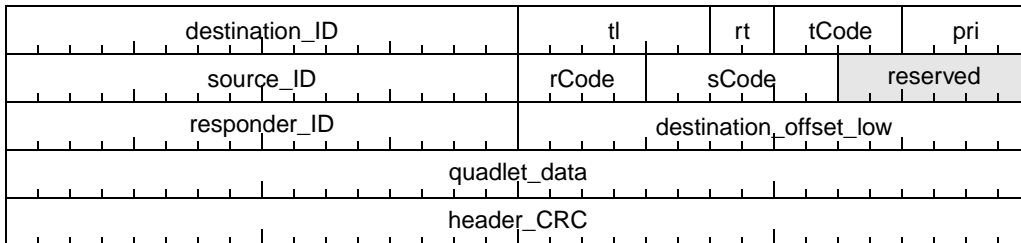


Figure 5—Bridge generated quadlet-read response

The 4-bit *sCode* field is specified in 7.3.1. The 16-bit *responder_ID* and 16-bit *destination_offset_low* field are defined in 7.2.3. The remaining fields are defined by the Serial Bus standard.

