



subject: **SAM BUILDOUT VALUE Change For Synchronous Applications**

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from: **BNS-2000 Customer Support
1800WE2CARE**

PRODUCT DOCUMENTATION NOTICE

BUILDOUT VALUE pertains to synchronous ports only and specifies the number of bytes collected within the SAM before starting the transmission of a frame out the SAM port. Low values have the benefit of starting transmission of a user's frame soon after data starts arriving at the SAM from the far end of the network. This minimizes store and forward delays. However, for circuits that travel over wide areas with network delay, there can be a disadvantage to low BUILDOUT VALUES. This is because once a frame starts to be transmitted out the SAM port, the entire frame must be sent within a very short time or a frame under-run will occur. But if the network has significant delays, the tail end of the frame may not arrive at the SAM in time to prevent an under-run. If frame under-run errors occur, they cause the endpoints to retransmit the entire frame leading to worse delays than high BUILDOUT values.

Although BUILDOUT works this way for the Bisync protocol also, frame under-runs do not occur because the frame can be sync-filled while waiting for the end of the frame to arrive from the network. For this reason, BUILDOUT VALUES for Bisync can be kept relatively low.

In order to handle networks with more delay while minimizing frame under-runs, the SAM8 and SAM16 have been changed to allow BUILDOUT VALUES larger than 254. However, the values entered to the SAM BUILDOUT VALUE prompt remain the same -- 1-254. The SAM8 and SAM16 will multiply the number entered by 4 to allow for BUILDOUT VALUES between 4 and 1016 in multiples of 4.

NOTE: Existing applications that have a BUILDOUT VALUE set, will now be using that value times 4 for SAM8 and SAM16. This may lead to a slight increase in delays due to additional store and forward processing. However, it will lead to the same or higher reliability (fewer under-runs) in all cases.

This PDN enhances the description of BUILDOUT VALUE in the Data Networking Products Synchronous/Asynchronous Multiplexer Reference document, CIC ID 255-100-203 (Issue 2), page 6-41.