N87-27601

DIGITAL AUTONOMOUS TERMINAL ACCESS COMMUNICATIONS

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DATAC BUS MONITOR

A significant problem for the Bus Monitor Unit is to identify the source of a given transmission. This problem arises from the fact that the label which identifies the source of the transmission as it is put onto the bus is intercepted by the DATAC terminal and removed from the transmission. Thus, a given subsystem will see only data associated with a label and never the identifying label itself. For normal bus subsystems, this presents no problem as each subsystem anticipates using only certain pieces of information and is capable of dealing with those pieces of information within the time frame between datum updates. The Bus Monitor, however, must not only receive all information that is present on the bus, but identify the source of the transmission so as to be able to provide some type of error identification/location in the event a problem with the data transmission occurs.

To alleviate this problem, we take advantage of a design feature of the DATAC terminal. The terminals can be programmed to produce an interrupt vector and an interrupt strobe upon receipt of a label. Ordinarily, this would be used to alert the subsystem connected to that bus terminal that a certain block of data has been received and to begin processing it. Again, because of the general nature of the Bus Monitor Unit, we need to process all the information that appears on the bus. When a second block of data arrives, we may not be done processing the first block, but we still want to know that the second block has arrived. Our solution is to allow the DATAC terminal to produce the interrupt signal, along with some arbitrary interrupt vector that we shall simply consider to be an identifying tag, rather than the address of a service routine. As a transmission is received, the transmission label is recognized by the terminal, produces the interrupt strobe and at the same time places the appropriate interrupt vector/tag on the address lines. The vector/tag is captured in a 16-bit register which is mapped into the I/O space of the Bus Monitor's Z8000 CPU. The Z8000 can then interrogate this register as needed to determine the source of the latest transmission. The interrupt strobe is directed to a transmission gate controlled by the Z8000 whose output is in turn connected to the gate controlled by the Z8000 whose output is in turn connected to the NMI/VIx lines the CPU. Additionally, the DMAREQ* signal from the Subsystem Interface of the DATAC terminal is now ORed with a control signal from the Z8000 that allows the Bus Monitor to inhibit a DMA operation. This permits the Bus Monitor to complete any pending processing tasks before being interrupted by a new block of data. By gating off the NMI/VIx associated with the new transmission, we now have the option of being immediately alerted to the arrival of new data or *DMA Request.

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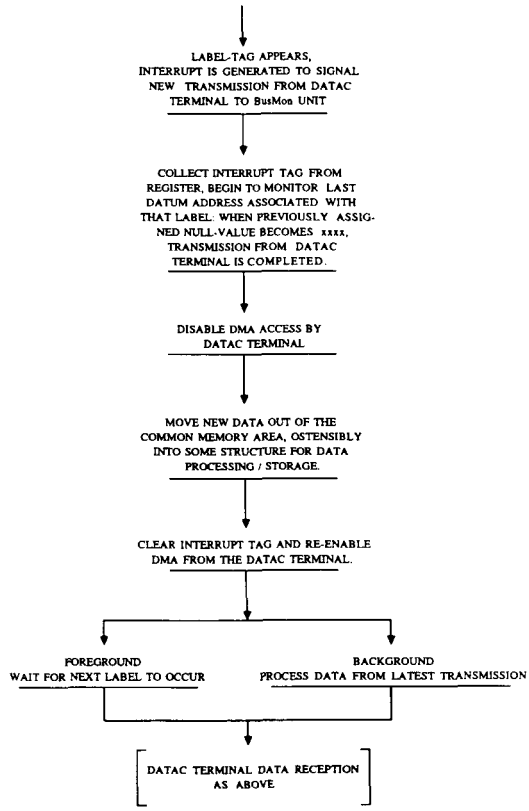
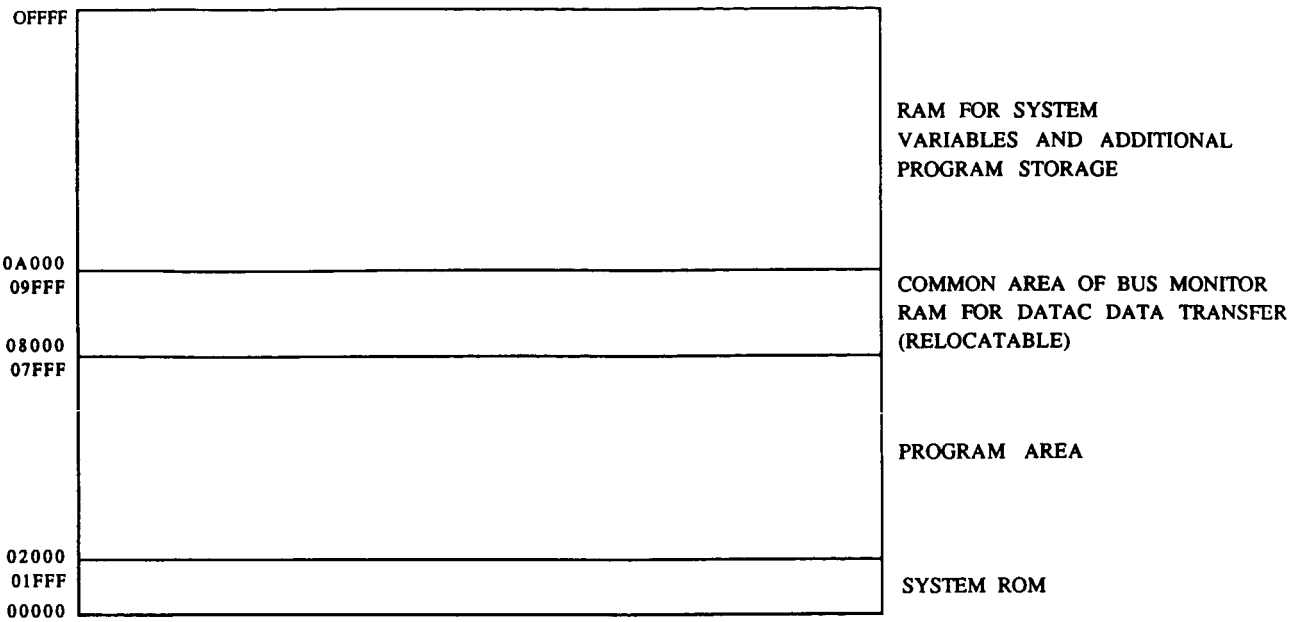
ignoring a given transmission until we have completed processing the last data received. This feature would prove useful when monitoring the communication schedule of the DATAC bus. In this mode, we are not concerned so much with the data that appears on the bus, but rather simply that each unit is communicating in the proper time frame.

With these modifications, the Bus Monitor processor may now identify the source of the data it receives, as well as control its reception of that data. These capabilities become increasingly important as the Bus Monitor is required to perform more and more complex data reduction tasks.

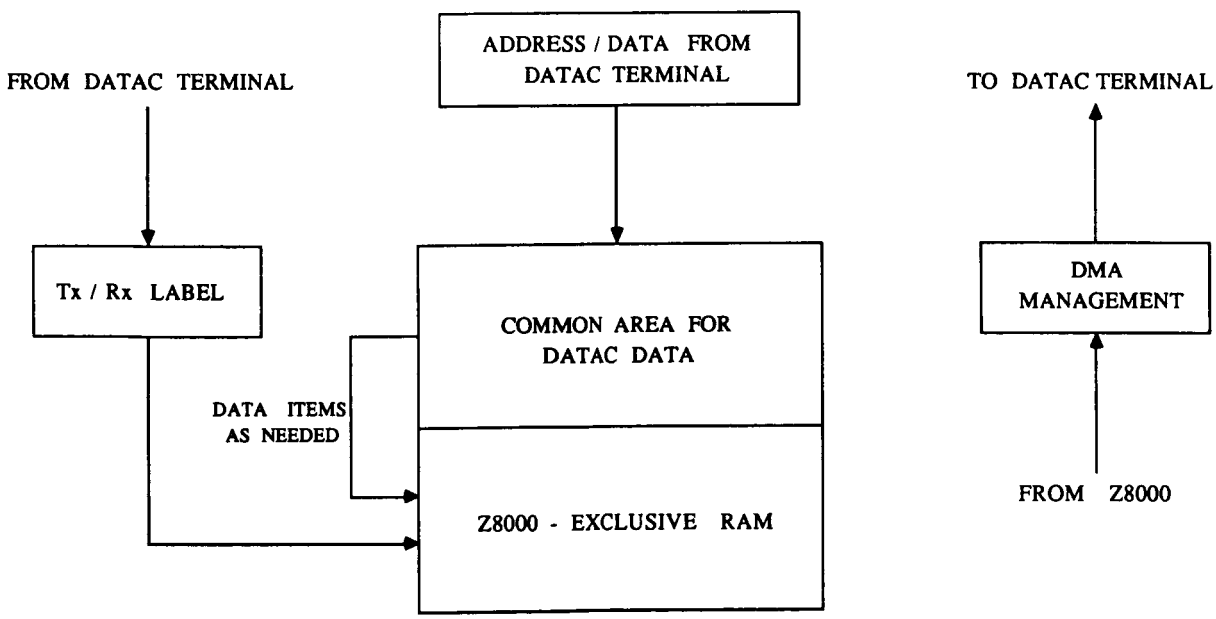
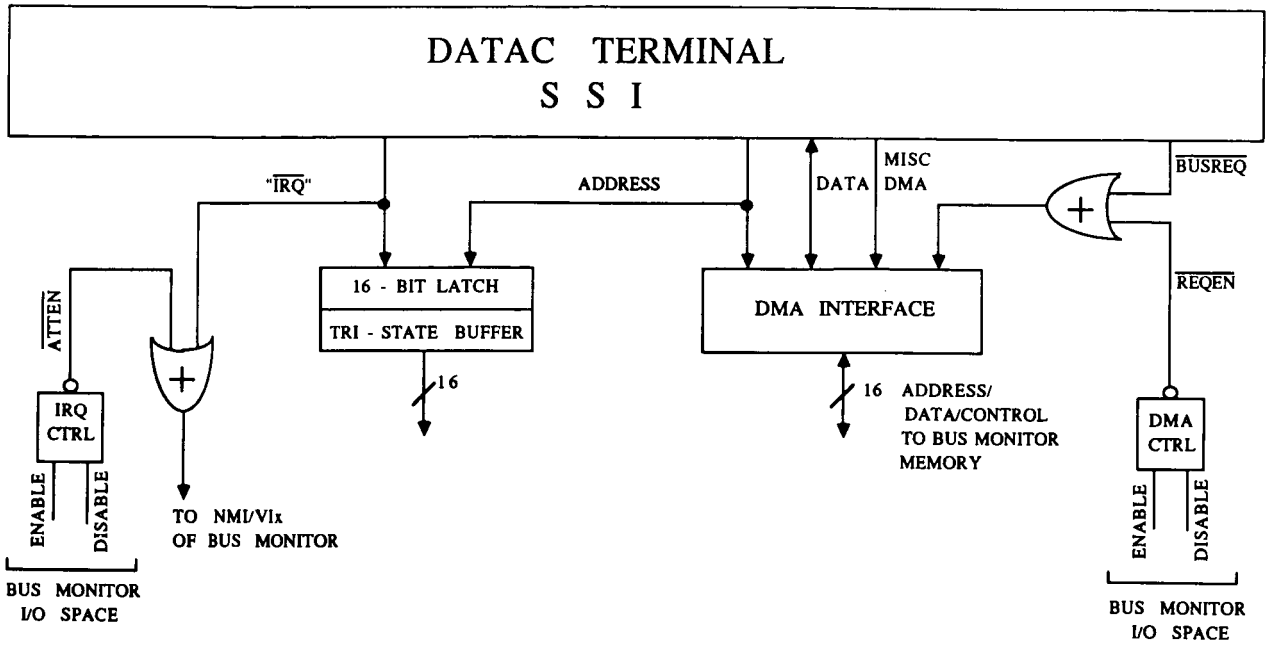
DATAC Terminal Interrup Monitor



Bus Monitor Memory Map



Data Terminal Transmission Identification and Acquisition



Modification to ZBUS/IEE696 Interface
To Allow Tranmission Identification