

## PROJECT:

### ADSP 2181 External Overlay and I/O Memory

September 23, 1997

The ADSP 2181 contains 16k word of program memory and 16k word of data memory. Sometimes this is not enough memory for customers to use with various projects. By connecting external overlay and I/O memory to the ADSP 2181, we gain technical knowledge like board layout and experience with wiring external devices to the DSP chip. Also, we are able to verify published information about external overlay and I/O memory. Finally, we are also able to verify the functionality of the ICE and simulator with external overlay and I/O memory.

## IMPLEMENTATION:

In order to connect the external overlay and I/O memory to the ADSP 2181, the ADSP 2181 EZ-Kit Lite was used. The EZ-Kit Lite contains two expansion connectors that would easily allow someone to connect external devices to the DSP chip. In this case, external memory. In order to connect the external memory to the DSP chip via the expansion connectors, a female header strip was soldered to the connector. A separate wire-wrap board was used to hold the external 32k x 8 SRAM chips. The pins from the memory chips would be wired to a male header strip and the board could be easily attached to the female header strip on the EZ-Kit Lite.

## RESULTS:

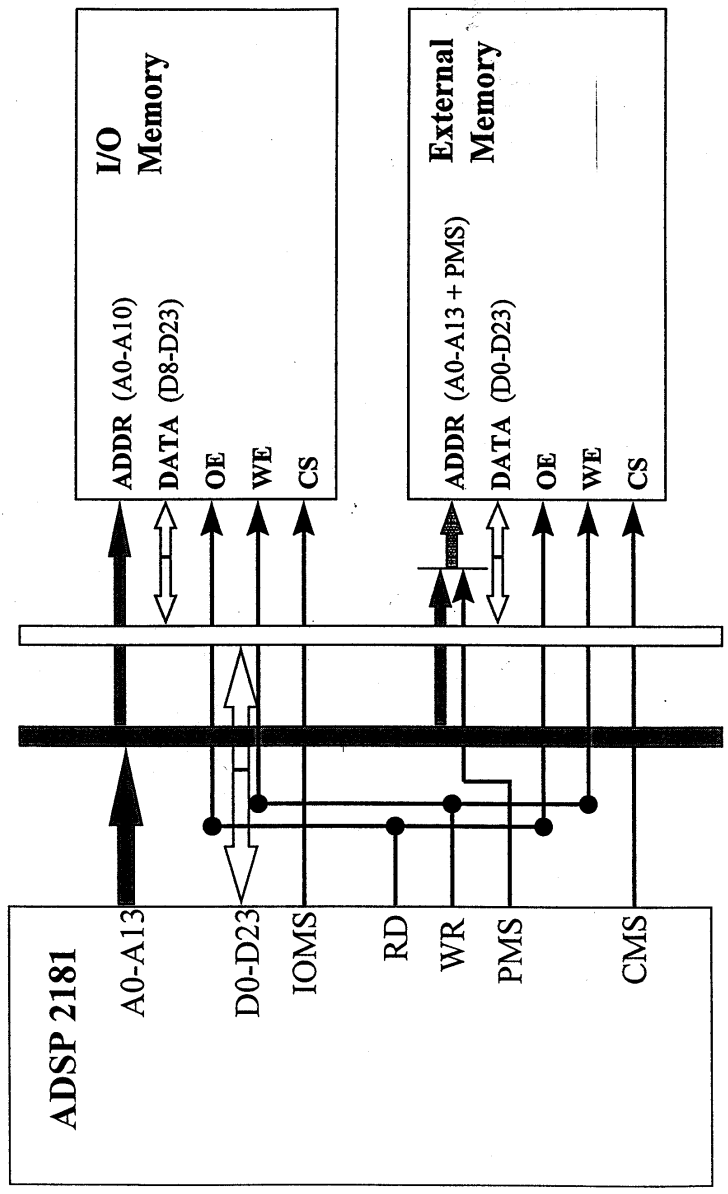
This project verifies the use of overlay memory with zero wait states as mentioned in the published information. Currently, the I/O memory is still in the process of debugging. Project is estimated to be completed within two weeks along with application note and schematics.

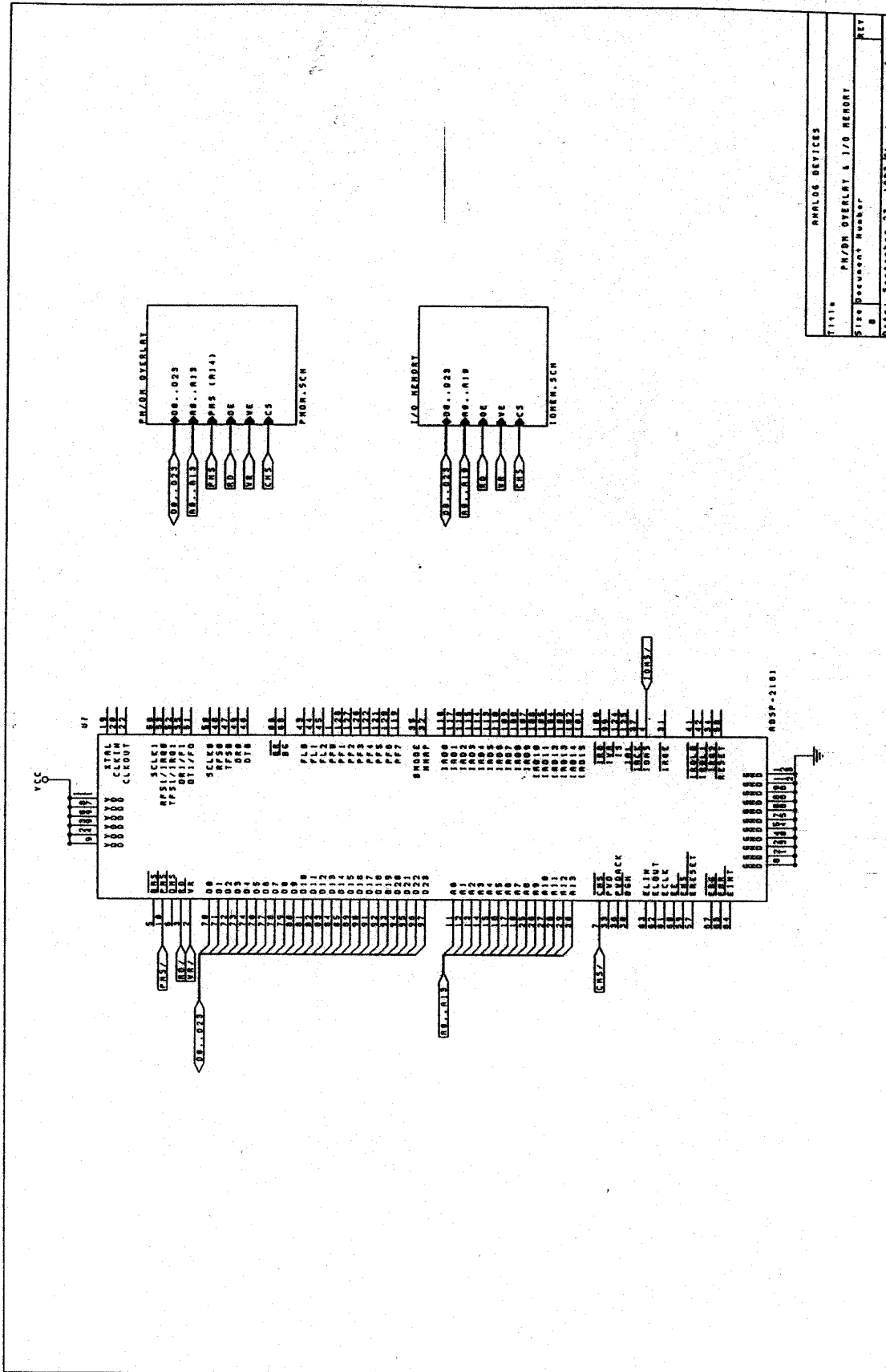
*wait state -  
hold all external  
signals from the  
microprocessor. In the  
same state they were  
in at the end of T2.*

## Materials Used:

1. (1) ADSP 2181 EZ-Kit Lite  
*Analog Devices, Inc.*  
Part Number - ADDS-21xx-EZLITE
  
2. (5) 32k x 8 SRAM chips. 12 ns, 0 waitstates from  
*Integrated Device Technology, Inc.*  
Part Number - 71256SA12TP
  - 3 for external PM/DM Overlay
  - 2 for I/O memory
  
3. (1) Dual Row 72 Pin male header strip from  
*Sullins*  
Part Number - SZ062-36 (*DIGIKEY*)
  
4. (1) Dual Row 72 Pin female header strip from  
*3M*  
Part Number - 929975-01-36 (*DIGIKEY*)

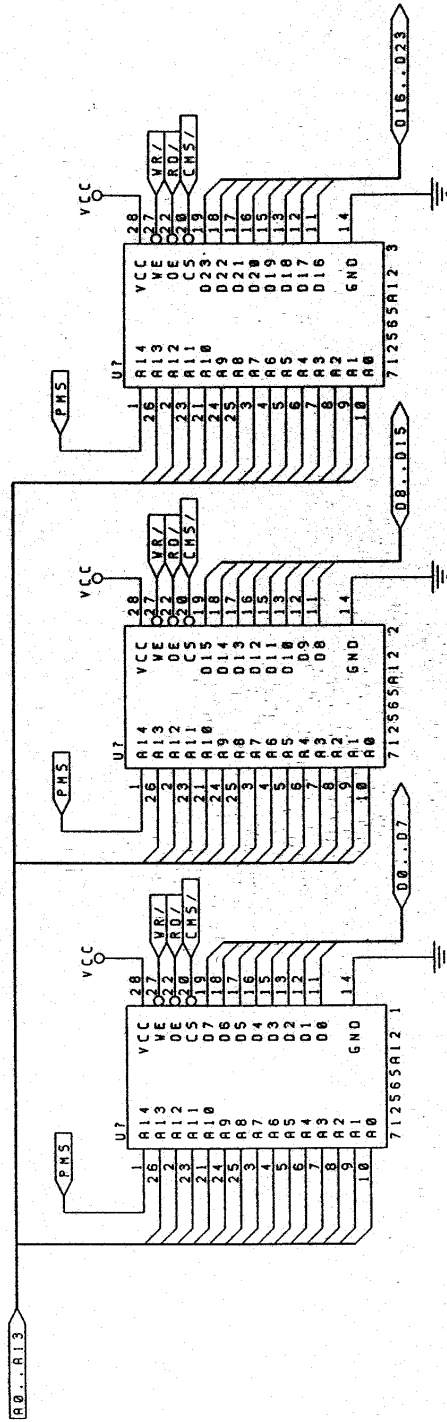
**ADSP 2181**  
**Memory Expansion Board**  
**PM/DM Overlay and I/O Memory**





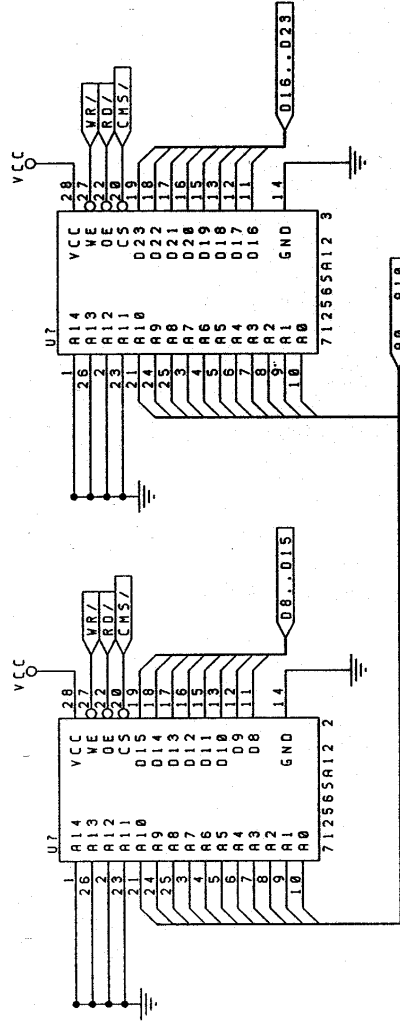
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EXTERNAL MEMORY (3) 32K x 8 SRAMS



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I/O MEMORY (2) 32K x 8 SRAMS



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