

Project Design  
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Overview |  
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We will use the SRAM for video frames and to store the history of our chat session. The ethernet connector will be used to send packets (over UDP). The RS232 connector will be used to get input from a serial keyboard. The chat session will be displayed on screen using the VGA connector.

HARDWARE

Memory Map |  
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|00000000|PP|AAAAAAAAAAAAAAAAAAAA|

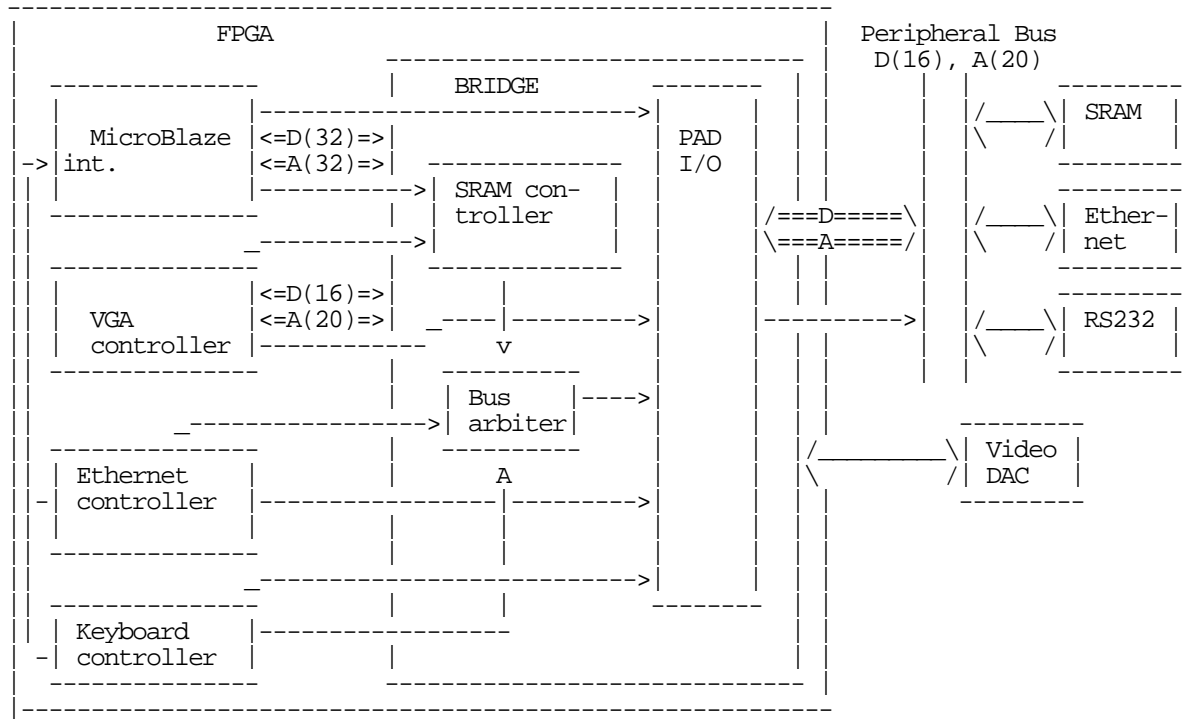
P - peripheral select (11 SRAM 01 Ethernet 10 Keyboard)  
A - address

Address and video memory will be allocated as needed.

Ethernet core registers: 0000-001F  
SRAM buffer : 4000-7FFF

Block Diagram |  
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The SRAM controller arbitrates access to the off-chip SRAM between the processor and the VGA controller.  
The Bus arbiter decides who gets to use the external bus at any time. According to the memory map, it finds out which bus slave an address is intended for, and enables the corres  
The PAD I/O component translates the internal signals so that they can be put on the external bus.  
The VGA controller reads from the frame buffer and displays ascii characters on the screen.  
The keyboard controller reads data from the serial port. If time does not permit, we will just leave the input to come from a serial connection to a PC.



## Pin Connections |

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pin 79 of Ethernet chip: ethernet clock ETHER-CLK comes from programmable oscillator CLKE

pins used on the Ethernet chip:

CS, IOR, IOW, AEN/PSEN, BHE, ICOS16, RDY/DTACK, IREQ, SA0-9 (addr), SD0-16 (data)  
manipulate jumpers to set base address of the Ethernet chip

## Registers |

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Ethernet:

Command, Page Start (PSTART), Page Stop (PSTOP), Boundry Pointer, Transmit status, Interrupt status, Transmit configuration, Transmit status

Most of the registers will be used to access the data stored in the buffer ring.

## SOFTWARE

We will be writing the IP/UDP stack in C (driver using any 2000 register level compatible instruction set). Since we are transmitting typed text, speed should not be an issue, so we probably will not need to optimize much in hardware.

The chat client will be also C.