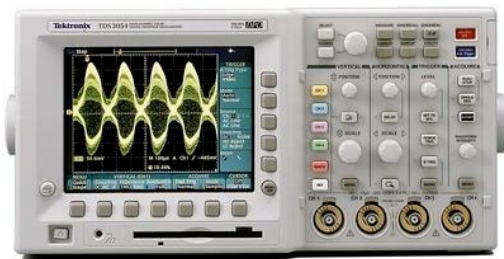


❖ COME BY OR GIVE US A CALL!

So, if you need design services in our specialties, come by or give us a call. It's always a pleasure to learn about new projects to learn how we can help make your project successful.

We'll evaluate your needs and give you an estimate of how much it will cost and how long it will take. Projects can be funded either on an hourly or fixed price basis depending on how well the work is specified and the degree of technical risk.

So come by, call or email to find out if Bitwise Systems Engineering Services are right for you.



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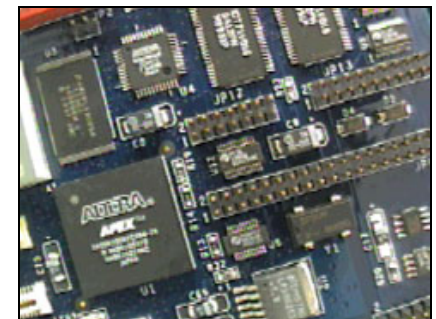
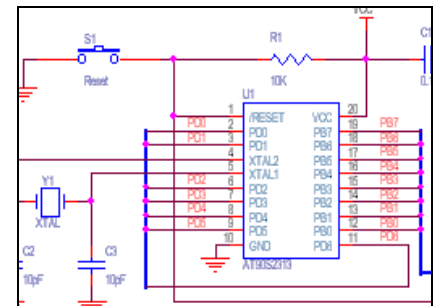


Engineering Services

```
use ieee.std_logic_unsigned.all ;

entity ram is
  generic (data_width : natural := 8 ;
          address_width : natural := 8);
  port (
    data_in : in std_logic_vector(data_width-1 downto 0);
    address : in std_logic_vector(address_width-1 downto 0);
    we : in std_logic ;
    data_out : out std_logic_vector(data_width-1 downto 0);
  );
end ram ;

architecture rtl of ram is
  type mem_type is array (2**address_width downto 0) of std_logic_vector(data_width-1 downto 0);
  signal mem : mem_type ;
begin
```



WE DELIVER CUSTOM EMBEDDED SYSTEMS AND PC INTERFACE PRODUCTS

Bitwise Systems is a local southern California company specializing in custom design and development of embedded systems and PC interface products. Our design services product portfolio consists of the following specialties:

❖ ELECTRONICS DESIGN

Most custom embedded systems require the integration of an embedded processor and some custom electronics that are required by the application. Typical projects have a microcontroller, an FPGA and some kind of analog (ADC and/or DAC) or interface electronics.



❖ PROGRAMMABLE LOGIC DEVELOPMENT

High performance digital systems generally require custom logic to

perform the required functions. Today, FPGA devices offer ease-of-use, short design cycles and high performance. To meet the FPGA development needs of our customers, Bitwise Systems is a proud member of the Altera Consultants Alliance Program (ACAP). As partners with Altera, we provide best-in-class FPGA design services for our customers.

❖ FIRMWARE DEVELOPMENT

The secret sauce of embedded systems is embedded software (a.k.a. firmware). Our firmware development skills range from single-chips to RTOS-based systems. C, C++ and assembler are the primary development languages. Our methodology ensures that regardless of the project size, your product will perform to specifications.

❖ SYSTEM-ON-A-CHIP

Many new embedded systems need the highest performance in the smallest size and at the lowest cost. By combining the microcontroller and digital logic an FPGA, we can create a 'system on a chip'. Altera's NIOS (pronounced 'nee-ohs') soft processor is a design-time configurable 16 or 32 bit, RISC processor that fits inside an Altera FPGA along with custom logic for your application. The NIOS core can be configured with a combination of several integrated peripherals such as UARTs, timers, and memory controllers. In addition, the NIOS core can be

tailored to add custom processor instructions that utilize custom FPGA logic to dramatically increase processing power. Bitwise Systems is a NIOS licensee.

❖ PC INTERFACE PRODUCTS

A large percentage of embedded systems need to communicate with a PC for control and/or to transfer data. We can help you decide which PC interface is right for your application. Our experience with PC interfaces is invaluable to the embedded systems development process since the same company that built the system also connects it to your PC.

❖ SOFTWARE DEVELOPMENT

The embedded systems' connection to the world of humans is through the software running on the PC it's connected to. And it's all about a clean, intuitive interface. We create software that makes your embedded system look and work great using Microsoft Visual Basic, Visual C++, Borland C++ Builder, and Delphi.

